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SOME ASPECTS OF ACUTE NEPHRITIS IN CHILDREN.¹

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THE material for this investigation has been gathered from 146 cases of acute nephritis occurring in the Adelaide Children's Hospital over varying periods from 1910 to 1932, and limited to the first twelve years of life. With this material an investigation into the seasonal incidence of acute nephritis in Adelaide was conducted and an inquiry was made into the results of operative removal of so-called focal sepsis in these cases. Before discussing these I wish to present some historical and other data relevant to acute nephritis.

¹ Read at a meeting of the South Australian Branch of the British Medical Association on July 25, 1935

PART I.

Historical Survey.

Richard Bright was born in Bristol on September 28, 1789, and it was due to his extensive clinical and pathological investigations and deductions that he was able in 1827, in his "Reports of Medical Cases Selected with the View of Illustrating the Symptoms and Cure of Diseases by Reference to Morbid Anatomy",⁽¹⁾ to publish facts which correlated the symptoms albuminuria and œdema with disease of the kidneys. In Bright's own words, his publication was:

An attempt to render the labours of a large hospital more permanently useful by bringing together such facts as seem to throw light on each other . . . to connect accurate and faithful observation after death with symptoms displayed during life, must be in some degree to forward the opportunities of our noble art.

He states further:

I have never examined the body of a patient dying with dropsy attended with coagulable urine in whom some obvious derangement was not discovered in the kidneys.

In 1842 Richard Bright had established at Guy's Hospital two wards, with laboratory attached, for the study of renal disease, "the first cooperative study of disease ever undertaken".⁽²⁾ He obtained 42 beds to study the changes which accompanied albuminuria and circumstances connected with the origin, progress and treatment of the disease, "a disease than which there is certainly none which offers a more extended field for well directed observations".⁽³⁾

In view of the still obscure ætiology of the nephritides, Bright's cautious statements made over one hundred years ago showed what a remarkably observant and thoughtful man he was, for we have advanced little from what he writes:⁽¹⁾

Whether the morbid structure by which my attention was first directed to this subject is to be considered as having in its incipient stage given rise to an alteration in the secreting period, or whether organic change be the consequence of a long-continued morbid action, may admit of doubt. The more probable solution appears to be that the altered action of the kidneys is the result of the various hurtful causes influencing it through the medium of the stomach and the skin, thus deranging the healthy balance of the circulation or producing a decidedly inflammatory state of the kidney itself, that when this continues long the structure of the kidney becomes permanently changed either in accordance with or in furtherance of that morbid action; or by a deposit which is the consequence of the morbid action, but has no share in the arrangement of the vessel on which the morbid action depends. . . . During some part of the progress of these cases of anasarca I have in almost all instances found a great tendency to throw off the red particles of the blood by the kidneys, betrayed by various degrees of hæmaturia from the simple dingy colour of the urine, which is usually recognized, or the slight brown deposit, to the completely bloody urine when the whole appears to be little but blood.

Since this time the number of men who have devoted years to the investigation of Bright's disease is legion, and the publications on the subject fill many volumes. A fuller account of these matters must be deferred in this presentation, but an excellent record of the early history and references to literature on this subject is to be found in the Bright Oration delivered by Professor W. S. Thayer in 1927, on the occasion of the Bright centenary, and reproduced in *Guy's Hospital Reports*.

Because of the great mass of confusing nomenclature which has at various times been associated with this subject, reference will be made to only one classification in order to preserve a clarity of thought in this jumbled realm.

Volhard and Fahr adopted the following classification (based on clinical phenomena):

Acute Nephritis.

A. Glomerular. The principal changes are in the glomeruli, with or without secondary changes in the tubules.

1. Focal glomerulo-nephritis. Only a small proportion of the glomeruli is involved.

(a) Non-embolic focal nephritis (corresponding to English and American writers' "acute hemorrhagic nephritis").

(b) Embolic focal nephritis (occurring only in infective endocarditis).

2. Diffuse glomerulo-nephritis. All the glomeruli are uniformly involved.

Nephrosis is not discussed in this presentation.

Modern View of Pathological Process in the Nephron.

The blood-borne toxin is carried by the afferent glomerular artery and circulates in the endothelial tuft and there sets up an irritation of the cells which results in a definite glomerulitis. The cells swell and the lumen of the arteriole becomes occluded and an ischæmia results. Proliferation of the endothelial cells occurs and some polymorphonuclear leucocytes and lymphocytes and a hyaline material appear in the lumen. Proliferation of the epithelium of Bowman's capsule occurs. The toxic agent may pass through to the corresponding tubules and there set up local inflammation, but as the tubule receives its blood supply from the corresponding glomerulus, glomerular ischæmia must result in secondary degeneration of the corresponding tubular cell lining. If the action of the causal agent is intense or prolonged, the process advances to a definite atrophy and fibrous replacement of the nephron. In focal glomerulo-nephritis only a few glomeruli are affected, and these affected units can, and do, heal completely without showing any trace of abnormal renal tissue.^{(4) (5)} In diffuse glomerulo-nephritis all the glomeruli are affected.

Clinical Picture of Acute Nephritis.

It is interesting to notice that Bright's summary of the modes of onset is typical:

A child . . . is affected with scarlatina or some other acute disease . . . he is exposed to some casual or habitual source of suppressed perspiration, he finds the secretion of urine greatly decreased or . . . tinged with blood, or without having made any such observation he awakes in the morning with his face swollen or his ankles puffing, or his hands œdematous . . . albumin in his urine . . . often headaches . . . under treatment or sometimes without any treatment . . . the swelling is no longer observed, the urine ceases to evince any admixture of red particles and according to the degree of importance which has been attached to these symptoms they are gradually lost sight of, or absolutely forgotten.⁽⁶⁾

Further, he recognizes that recovery from acute nephritis occurs, but evidently feels that the usual course is progressive.

Acute Focal Nephritis.

From a study of the cases which I have observed, the main points in connexion with acute focal nephritis are as follow.

1. The condition is rare under two years of age and shows no predilection for either sex.

2. It is associated usually with the history of some recent antecedent infection: tonsillitis, cervical adenitis, streptococcal skin infection *et cetera*, usually in an otherwise well child, naso-pharyngeal and upper respiratory infections being the most common.

3. It is always accompanied by gross hæmaturia and usually corresponding albuminuria.

4. There is usually a mild transient œdema which clears up after several days' rest in bed.

5. There is usually a noticeable pallor of the face.

6. Often there is a slight initial increase in blood pressure.

7. Microscopical examination of the urine reveals the presence of blood, epithelial and granular casts, and blood cells which usually disappear entirely.

8. There is usually not an appreciable diminution in the quantity of urine.

9. The blood urea nitrogen is within normal limits (10 to 23 milligrammes per 100 cubic centimetres of blood).⁽⁷⁾

10. The urea concentration test⁽⁸⁾ may reveal a very slight initial decrease, pointing to transitory slight impairment of function.

11. The phenolsulphonephthalein test⁽⁹⁾ is unreliable in many children owing to lack of cooperation of the patient. This also applies to Van Slyke's urea clearance test.⁽¹⁰⁾

12. Sometimes headache or vomiting is present, associated with epigastric pain.

13. The *fundus oculi* presents no change.

Acute Diffuse Nephritis.

The main points that I have noted in acute diffuse nephritis are as follow.

1. The condition is usually associated with a history of some recent antecedent infection or intoxication, for example, tonsillitis, *otitis media*, coryza.

2. The illness is usually of longer duration and more serious significance than the focal type.

3. It is always associated with hæmaturia and albuminuria.

4. It is always associated with œdema, which is more generalized than in the focal type, face, feet, legs, lumbar region being affected in that order of frequency.

5. Usually there is some initial diminution in the quantity of urine.

6. Granular, blood and epithelial casts are always present.

7. There is more impairment of renal function than in the focal type.

8. Usually increase in blood pressure occurs, sometimes to a high degree.

9. Headache and vomiting often occur.

10. Convulsions sometimes occur which may go on to definite uræmia.

11. Temporary loss of vision may occur, but no changes in the *fundus oculi* have been observed.

Ætiology.

Although no proof exists at present, it is now generally considered that the primary cause of acute nephritis is a toxæmia,^{(11) (12) (13) (14)} with a high incidence in streptococcal infections. This idea still lacks absolute proof, but it does explain a great many features of the disease, and until our research has further advanced the true cause of acute nephritis will remain indefinite.

Various theories have been put forward to attempt to explain the underlying pathological processes, and they include: (i) the presence of a particular toxin with affinity for renal tissue (nephrotoxin); (ii) a very virulent strain of organism; (iii) a high concentration of toxin; (iv) prior injury of renal tissue, allowing easy access to circulating toxins, preexisting acidosis due to the primary infection (for example, tonsillitis) rendering the kidneys more vulnerable to infection; (v) an allergic state, considered to play a part in determining the onset of the kidney lesion following an infective process.

It was customary to associate scarlet fever with acute nephritis, but we did not realize that this sequence of events is now comparatively uncommon and that there are many other conditions which much more often have acute nephritis as a sequel than scarlatina.

Bingham⁽¹⁵⁾ says that every infectious disease of childhood may be accompanied by nephritis, and that, whereas it is the custom to examine the urine after scarlet fever, it is not customary after measles, diphtheria, tonsillitis, mumps and other infectious conditions. He advocates this.

L. W. Hill⁽¹⁶⁾ recognizes that far more cases are secondary to tonsillitis than to scarlet fever and other infections, while Guthrie,⁽¹⁷⁾ in a review of thirty-six cases of acute nephritis in children in Glasgow, states that the majority of patients gave no history of previous illness to which the inflammatory renal condition might be attributed.

The relationship between streptococcal skin infections (usually *impetigo contagiosa*) has been noted by several. Osman⁽¹⁸⁾ at Guy's Hospital, and Kaumheimer⁽¹⁹⁾ in Germany, noted its definite existence, especially under the age of ten years.

In the cases which have been studied, the conditions which were the precursors of acute nephritis, with the average period between the onset of symptoms and the appearance of hæmaturia *et cetera* (the interval) are given in Table I.

TABLE I.

Condition.	Number of Cases.	Percentage.	Average Interval in Days.
1. Acute tonsillitis	38	30.0	9.8
2. Scarlet fever	12	9.4	21.0
3. Impetigo	11	8.6	11.0
4. Coryza and <i>otitis media</i>	18	14.1	9.0
5. Cervical adenitis	9	7.0	7.0
6. Stomatitis	2	1.5	5.5
7. Measles	1	0.75	23.0
8. Pneumonia	1	0.75	11.0
9. Diphtheria	1	0.75	17.0
10. Variable (no disease entity) ..	33	26.0	6.8

In 74% of cases there is a definite history of preceding active bacterial infection (Fishberg⁽¹²⁾ gives 84% in his series, Paterson and Wyllie⁽¹³⁾ 85%). My figure is probably low, as it is possible that in many of the "variable" cases there were infective processes to which no attention was drawn in the history by the parents.

The conditions will be discussed *seriatim*.

1. *Tonsillitis*.—Tonsillitis is a precursor in 30% of the cases, and the average length of time after the illness commences until the appearance of signs indicative of renal inflammation is 9.8 days, with periods varying from one to thirteen days after onset. The time, therefore, in most cases, when the onset of nephritis is most likely is some days after the amelioration of throat symptoms, and comes on when the child is apparently in good health, having recovered from the "sore throat". A common sequence of events is that the child has been in bed for a few days and has then been allowed to get up, seeming to be quite well, goes to school, and then, without warning, the face may be seen to be "puffy"

and the urine to be "dark". It is interesting to note that, although tonsillitis is a frequent occurrence in hospital patients who are at rest in bed on account of other illness, this sequel is unknown to me in these (hospital) cases. It may be that rest in bed is one important factor in prophylaxis, and a minimum of variation of surrounding temperature another. It is also mentioned that the number, 30%, is probably low, as many children do not complain of sore throat, and this may, on that account, have been missed in the early stages of the disease.

2. *Scarlet Fever*.—In this series there were twelve cases (9.8%) in which there was a definite clinical scarlet fever, and the average length of time after the onset of the scarlatina to the sequence of acute nephritis was twenty-one days. This period corresponds to the figures of Scholes⁽²⁰⁾ in Melbourne, who places the period at eighteen to twenty-three days, and of Ker⁽²¹⁾ (Edinburgh), who states that nephritis is seen more frequently after the twentieth day than before the sixteenth. It is to be noted from the case histories that in the majority the onset of the nephritis occurred soon after the child was allowed out of bed. From this may it be inferred that if the child had been confined to bed for a longer period the nephritis might have been prevented? In my opinion, if every patient with scarlet fever were confined to bed for a minimum period of twenty-eight days, the incidence of post-scarlatinal nephritis would be considerably reduced.

3. *Skin Infections*.—Skin infections comprise eleven cases (8.6%) and consisted entirely of impetiginous lesions, presumably (no cultures taken) due to a streptococcus⁽²²⁾ and commonly termed *impetigo contagiosa*. This condition is not commonly recognized as having acute nephritis as a sequel, and it is worthy of note that the literature does not stress this condition.

In our series the lesions were as a rule not extensive and would be regarded as trivial. Usually the lesions were not of long standing, the average duration being eleven days, and were accompanied by enlargement of the associated lymphatic glands. It is interesting to note that of two patients (brothers) one developed acute nephritis with an associated impetigo which had been present at intervals for four months, the other developed impetigo and nephritis occurred two weeks later, the duration between the development of the nephritis in the two cases being nine days. Both ran similar courses over a period of about two months and were discharged well within two weeks of one another.

The others I will pass over without comment, drawing your attention to pneumonia only.

4. *Bronchopneumonia*.—Bronchopneumonia was the forerunner in one case (0.75%), and after eleven days the urine was found to contain red blood cells. Findley⁽²³⁾ draws attention to the curious fact that acute nephritis and pneumonia are frequently caused by or predisposed to by chill, but

they seldom occur together. This may be so, but my opinion is that the condition is more commonly present than is suspected, and because it is not looked for it is not found. (Since this I have noticed three other cases occurring after pneumonia.)

5. *Variable Conditions*.—Thirty-three cases (26%) are included in the group of variable conditions. The average interval was 6.8 days. This heading has been used to include a variety of different modes of onset when the history, as far as can be ascertained, is reliable, but when there is no definite entity as a precursor to the nephritis. The commonest symptom in this class was vomiting, either accompanied or soon followed by oedema or hæmaturia. Abdominal (usually epigastric) pain was a common complaint; sometimes this was very acute. Other initial symptoms were headache, diminution in quantity of urine, convulsions; and there was often a history of chill.

PART II.

Seasonal Incidence and Atmospheric Temperature Variations.

The predisposition of "cold"—meaning a low external atmospheric temperature—has long been known in the aetiology of disease and has been noted by writers from the earliest times.^{(24) (25)}

Grainger Stewart⁽²⁶⁾ and Tirard⁽²⁷⁾ refer to cold and wet as the most common exciting causes of acute nephritis, especially among young adults. The latter noted that it was rare to find acute nephritis attributable to cold, unless the patient previously suffered from one of the exanthemata. Shaw Dunn and McNee⁽²⁸⁾ have noted the relationship between cold and damp and the so-called "war nephritis", but feel that season and weather conditions played no part in its incidence.

Christian and O'Hare⁽²⁹⁾ state that exposure to cold is regarded as a potent factor in the causation of acute nephritis, and it is certain that attacks follow chilling.

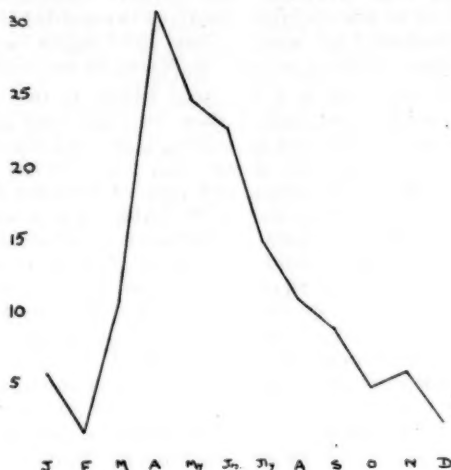
C. B. Ker is even more definite and states that it is beyond all doubt that at certain times of the year both nephritis and albuminuria appear to be much more common—"damp, cold autumnal weather seems to favour its prevalence . . ."

The only reference to the seasonal incidence of acute nephritis I found in the literature is one from Edinburgh,⁽³⁰⁾ which gives October and November as the months during which the incidence is highest, and that "while toxins are the exciting cause, a predisposing cause may be exposure to draughts of cold air".

In this series of cases it was noticed that at certain times of the year the wards of the Adelaide Children's Hospital contained many more patients with acute nephritis than at other times, and it was thought that some investigation into this monthly or seasonal variation might bring out some facts relating to the local incidence of the disease.

One hundred and forty-six cases of acute nephritis were investigated and grouped into monthly incidence as shown in Graph I.

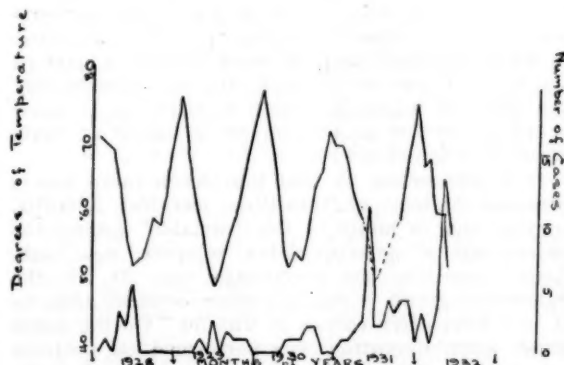
The monthly incidence of the 146 cases of acute nephritis was as follows: January, 6; February, 2; March, 11; April, 31; May, 25; June, 23 (total for six months, 98); July, 15; August, 11; September, 9; October, 5; November, 6; December, 2 (total for six months, 48). It will be seen that the months of April, May and June account for 79 cases, or 54.1% of the total.



GRAPH I.

The average normal mean atmospheric temperature as given by the official records of the Adelaide Observatory are computed over a period of 65 years. These temperatures are determined by the average of the official maximum and minimum temperatures day by day for each month.

A combined graph was plotted of the number of cases of acute nephritis occurring in each month, with the average normal temperatures of those months (Graph II). From this it is seen that with



GRAPH II.

occasional slight variation the troughs of the temperature curves correspond with the peaks of the number of cases curves and *vice versa*, or, more accurately, the downward slopes of the temperature

curves coincide with the upward slopes of the number of cases graph.

From the foregoing it follows that acute nephritis in children:

1. Occurs most frequently in the months of April, May and June, which months have the greatest difference in fall of mean average normal temperature.

2. The months showing next greatest incidence are March and August.

3. It is of infrequent occurrence during November, December, January and February (the summer months). These four months account for 16 cases (10.9% of the total).

4. It does not necessarily follow that the colder the month, the greater the incidence; but rather that in the months which comprise the autumn season the incidence of the disease is greatest, or in the months when the mean average temperatures drop most the incidence of the disease is highest.

PART III.

Septic Foci in Relation to Acute Nephritis.

The common association between tonsillitis, cervical adenitis and naso-pharyngeal infections on the one hand (septic foci) and acute nephritis on the other has brought about the consideration at the Adelaide Children's Hospital (and elsewhere) of the question of operative removal of these foci, with the idea that the course of the active disease may be shortened and the recovery hastened and the possibility of recurrence and chronicity minimized.

Literature on this subject is at present somewhat scanty, but the following information has been obtained.

Close,⁽³¹⁾ reporting on this subject in *Guy's Hospital Reports*, points out that it is difficult to draw conclusions as to its value in acute nephritis because of the paucity of figures, and considers that the treatment is open to doubt. Of his patients, 51 (74%) had no recurrence, but he reminds us that 75% to 80% of patients recover completely with or without tonsillectomy. Allison,⁽³²⁾ in a much smaller number of cases (12) which showed evidence of tonsillar infection, claims rapid recovery following removal, and states that the majority of patients were free from symptoms and apparently recovered one week from the onset. Layman⁽³³⁾ reports 56% cures and 32% definite improvement in a series of 37 cases. Osman⁽¹⁸⁾ states that acute nephritis may occur after tonsillectomy, and this is borne out in some of the cases in the present series. He, as does Greenwood,⁽³⁴⁾ notes that the immediate reaction to the operation is variable and that it often produces a temporary setback followed by improvement. Longcope⁽³⁵⁾ notes that it is the practice in America to advise surgeons to take only two minutes over operation in order to avoid trauma to tissues and thus try to avoid an exacerbation of symptoms. He does not state whether this is successful or not. Lyttle and Rosenberg⁽³⁶⁾ state that the underlying factor in the production of chronic nephritis is probably persistent or recurrent infection, and are therefore advocates of the removal of any such "foci"; and McPhee and Kaye,⁽³⁷⁾ working

in Melbourne, reviewing 90 cases, claim that no case in a patient aged less than ten years progressed to chronic nephritis whether subjected to operation or not; with this I am in agreement.

The supposition that long continuance of the lesion may be due to the more or less constant influx to the kidney, through the blood stream, of some toxic material formed in a focus of infection elsewhere in the body is not proven . . . The removal of tonsils and teeth and the draining of the infected sinuses do not seem to have any permanent effect on the disease.⁽³⁸⁾

A. C. Alport⁽³⁹⁾ advocates surgical removal of septic foci, the best results being obtained when the operation is carried out at an early stage of the illness. Cautley⁽⁴⁰⁾ points out the relationship between tonsillitis and "chill" and hæmaturia and albuminuria, and recommends waiting until blood has gone from the urine before performing tonsillectomy. Izod Bennett⁽⁴¹⁾ aptly summarizes the situation when he writes that:

Cases are met with in which the . . . infection clearly arises from some source such as the tonsil, and these foci should be eliminated whenever possible . . . such treatment can at best prevent the further ingress of toxin and does nothing to affect the organ in its existing state of inflammation.

In the cases under review fifty patients were operated on. The time at which this was performed after onset of symptoms varied from one day to five months. After operation the patients remained in hospital for periods varying from one week to four months, averaging six weeks; the average length of time of these operated cases from onset to discharge from hospital as free from all symptoms and signs of nephritis was fifteen weeks. This group was compared with fifty others who were not subjected to operation, and this group averaged nine weeks from onset to discharge. The operations comprised removal of tonsils and adenoids, maxillary antrostomy and mastoidotomy.

Immediate Results of Operation.

I have used the term "relapse" to describe the clinical picture which follows in some cases after operation. The patient may at the first urinary examination after operation or at a later date, show a very evident increase in urinary blood, varying from "port wine" to a mild degree of smokiness, or there may be no macroscopic evidence of hæmaturia, but the microscope will reveal a very great increase in the number of red blood cells per field. Renal casts also reappear or greatly increase in numbers. Accompanying this there will be a return of albuminuria, and often a diminution in quantity of urine voided. Œdema has not been noted to return during a relapse.

The child may change from a condition of well-being to one of misery. Often a sharp rise of temperature and increase in pulse rate occur.

Relapse occurred in 14 cases, or 28%, the sexes were equally affected, whilst of the types of acute nephritis which were represented, all but three cases were focal. In 64% there was no noticeable alteration in the general condition of the individual following operation.

Time after Operation at which Relapse Occurs.

In all but one case the urinary symptoms recurred within twenty-four hours of the operation (immediate).

Length of Time of Relapse.

Almost all cases showed some red blood cells, and many showed casts at the time of operation, and the time taken for these urinary abnormalities to return to pre-operation findings is recorded below. The shortest time was one day, the longest twenty-eight days, with an average duration of twelve days.

Four patients had relapses which lasted more than twenty days, and of these two had bone operations, one for infected maxillary antra and the other for mastoiditis. It seems that the severity and nature of the operation and type of infected focus may have a bearing on the initiation of a relapse—where bony structures are the seat of infection the likelihood of a longer relapse is greater, possibly owing to the fact that the infected material is not all removed at the time of the operation and that the more gradual healing process allows of a greater absorption of toxic products.

In one case severe post-operative tonsillar hæmorrhage occurred necessitating a blood transfusion. This did not result in any alteration of the urinary constituents, and the patient made an uninterrupted recovery and the urine was clear two weeks later.

The explanation of why some patients relapse after operation and others do not is difficult, but perhaps the most likely theory is that some patients lose their antitoxic immunity towards the bacterial infection, either wholly or in part, some weeks after the initial stage of the illness. Operation results in a trauma to tissues surrounding the focus and leaves a temporary infected area richly supplied with the small blood vessels of granulation tissue which may act temporarily as a potent source of absorption of toxins. Thus a temporary reproduction of the original picture of acute nephritis is often produced.

From this it may be inferred that the patients who show a relapse following operation are those in whom the foci removed were playing a part in the original cause of the nephritis, and consequently are those in whom operation is likely to be most beneficial so far as cutting off a source of toxic absorption is concerned.

It is interesting to note that when there was a previous history of tonsillitis, cervical adenitis, coryza, and in many of the "variable" group, the percentage of post-operative relapses was high. After tonsillitis the percentage was 29; in the "variable" group it was 25; after cervical adenitis it was 100; after coryza it was 50. On the other hand, when operation was performed on patients whose probable prodromata were skin infections and stomatitis, the percentage of relapses was nil.

The figures also showed that operation within the first six weeks is advisable if the duration of the active stage is to be shortened; this should be between four and six weeks from the onset. Moreover, relapse after operation does not appear to

occur more frequently in cases of diffuse than in focal nephritis; also relapse does not seem to prolong the duration of the illness—the average length of time of the illness of the patients operated on who relapsed and those who did not relapse was 15.3 and 15.0 weeks respectively.

Ultimate After-Effects of Operation.

Twenty-one patients who had undergone operation were followed up at times varying from three months to three years after operation. Twenty patients who had not undergone operation were seen at intervals of from three months to seven years after their illness. Full clinical and laboratory investigations were carried out on these children.

Of the group submitted to operation there were apparently cures in all but two cases. In one of these only three months had elapsed since an antrostomy had been performed, and in the other the patient presented normality in every way except for the presence of a few red blood cells in a centrifuged specimen of urine.

Among the twenty not operated on, no patient was found in whom there was any evidence of abnormality.

It seems, therefore, that the end result of acute nephritis occurring in children is very good. There is no evidence to show that there is any difference in the end result in patients subjected to operative removal of septic foci and in those who are not subjected to operation up to a period of seven years after the original illness. In this series the patients not operated on showed a slightly higher percentage of cures than those who were operated on.

It is considered that removal of septic foci in treatment of acute nephritis plays no prominent part in the treatment of the disease, except in so far as their eradication should be undertaken, if there is some definite local indication.

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A MEMBRANOUS ORO-PHARYNGITIS.¹

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DURING the past three years there have come under my notice several sporadic cases of a condition of which there appears to be no mention in any literature—a condition which, for want of a better name, one may perhaps term a membranous oro-pharyngitis. Doubtless some of you here tonight have also met with this affection, and perhaps, like myself, have been puzzled by its appearance and by its marked resistance to treatment.

Reports of Cases.

In order to prevent frequent repetition, I will give you a brief outline of each case, and thereafter deal collectively with the various characteristics of the condition.

¹ Read at a meeting of the Tasmanian Branch of the British Medical Association on August 13, 1935.

CASE I.—G.P., a male, aged thirty-six years, was seen once only, in consultation, on February 4, 1932. He complained of sore throat for ten days. On examination there was a small patch of false membrane on the left anterior pillar of the fauces, and also some on the left posterior pillar and on the posterior pharyngeal wall.

Examination of smears and attempts at culture revealed no Vincent's organisms or Klebs-Löffler bacilli. I am unable to obtain any further history as regards this condition, excepting that it persisted for several weeks.

CASE II.—W.C., a male, aged eighteen years, was first seen on June 29, 1933. He gave a history of tonsillitis two and a half weeks previously, followed by an attack of acute catarrhal jaundice. For the past four days he had had painful ulceration of the gums.

Examination revealed two patches of false membrane on the left anterior pillar of the fauces and a large one along the right upper gum and in the adjacent gingivo-labial fold. Examination of a direct smear revealed no organisms of Vincent's angina. The following organisms were cultured: (i) hæmolytic streptococci, (ii) *Streptococcus viridans*, (iii) short-chained non-hæmolytic streptococci, (iv) *Staphylococcus aureus* and *albus*, (v) pneumococci, (vi) also in the membrane, but not in the swabbing from beneath it, numerous spore-bearing saprophytic bacilli. No diphtheria bacilli were cultured.

On July 9, 1933, the condition had spread around to the right upper gum and gingivo-labial fold.

Up till July 16, 1933, the patient was given successively various pigments containing *vinum ipecacuanha*, *liquor arsenicalis*, *tinctura iodi*, *acidum tannicum*, *acidum carbolicum* and "Acriflavine". The patient was then given a pigmentum of crystal violet and brilliant green. By July 19, 1933, the patches on the anterior pillar had cleared up. On July 25, 1933, the gingival membrane had receded considerably. The patient was then given a paint of silver nitrate in addition to the crystal violet and brilliant green. By September 5, 1933, the condition had entirely cleared up.

CASE III.—W.H.C., a woman aged forty-one years, was first seen on August 11, 1933. This patient is the mother of the patient in Case II. She had been nursing him and had taken all precautions against the spread of infection from him. The parts involved again were both anterior pillars, the gums of both upper jaws, and adjacent gingivo-labial folds, as well as a small area on the soft palate. Examination of a smear revealed no organisms of Vincent's angina, and swab culture yielded the following: *Staphylococcus aureus* and *albus*, *Streptococcus viridans*, short-chained streptococci, Gram-negative bacilli.

The patient was given the combination of crystal violet and brilliant green, in addition to a pigmentum containing resorcin.

On August 14, 1933, the condition had been confined to the gums and gingivo-labial folds, and the resorcin paint was discontinued in favour of a daily painting with silver nitrate solution.

On August 22, 1933, there was a small extension to the inner surface of the right upper lip, with resultant oedema of the lip; there was also some in the left lower gingivo-labial fold. By September 12, 1933, there was only a very tiny patch remaining in the left upper gingivo-labial fold. This did not completely clear up, and on October 2, 1933, she had an extensive recrudescence on the outer surfaces of both sides of the lower alveolus.

In spite of most careful and painstaking treatment, she was not clear of the condition until December 8, 1933—four months after the onset, one month of which was spent in hospital.

CASE IV.—H.M., a girl aged eleven years, was first seen on September 14, 1934. A fortnight previously she had had a sore throat with "ulceration" on the right side. For the previous three days she had had a sore throat on the left side with "ulceration".

On examination there was false membrane on the left anterior pillar of the fauces, a tiny patch extending to the left tonsil. No organisms of Vincent's angina were seen in a smear. Swab culture revealed *Staphylococcus aureus* and *albus*, short-chained streptococci, and pneumococci. The patient was given a paint containing crystal violet and brilliant green, and another of *liquor arsenicalis* and *vinum ipecacuanha*.

By September 20, 1934, there was only a very tiny patch remaining on the anterior pillar of the fauces. By September 25, 1934, this patch had cleared up; but there was involvement of the left upper gum. This condition cleared up by October 1, 1934. On November 23, 1934, there was a slight recurrence on the left upper gum, which cleared up by November 27, 1934.

CASE V.—H.D., a woman aged thirty-two years, was first seen on July 22, 1935, when she gave a history of sore throat for eight or nine days. There were three small patches of false membrane on the left anterior pillar of the fauces. There were very slight enlargement and slight tenderness of the left upper cervical lymphatic glands.

Swab culture revealed numerous pneumococci, a moderate number of long-chained streptococci, and *Staphylococcus albus*. The patient was given a combination of crystal violet and brilliant green and a paint containing *vinum ipecacuanha* and *liquor arsenicalis*. On July 27, 1935, the patches on the pillar had cleared up; but there was now an extension to the left lower gum and adjacent gingivo-labial fold. By August 7, 1935, the condition had entirely cleared up.

Discussion.

Now let us deal with the various aspects of this membranous oro-pharyngitis, as they appear to me.

Bacteriology.

Actual organisms found on culture were various, including the following: hæmolytic streptococcus, *Streptococcus viridans*, short-chained non-hæmolytic streptococcus, *Staphylococcus aureus* and *albus*, and pneumococcus. The organism which appears to be the most consistently present is a short-chained non-hæmolytic streptococcus.

The condition is apparently mildly infectious, as shown by Case III, the patient having contracted it from her son.

Signs and Symptoms.

There is a good deal of local discomfort and dysphagia, which latter is especially marked when the soft palate is involved. There is no elevation of temperature or any general reaction. There are sometimes slight enlargement and tenderness of the upper cervical lymphatic glands.

All cases seem to show a tendency for the membrane to appear at first on the anterior pillar of the fauces, usually in discrete patches, which may spread to the soft palate, to the tonsil, and occasionally to the posterior pillar of the fauces. But the favoured direction of extension is to the gums and into the gingivo-labial folds. In no case was the membrane ever confined to the tonsil, and there was always more present elsewhere than on the tonsil.

The membrane itself is a false membrane, moderately thin, white and opalescent, and always sharply demarcated, its edges being surrounded by a thin band of hyperæmia. It lifts very easily, but is followed by very free hæmorrhage from the whole

of the bared surface, and it soon reforms. Recrudescence and recurrence are apt to occur.

Differential Diagnosis.

The diseases for which the condition may most easily be mistaken are diphtheria and Vincent's angina.

The membrane is paler than is usual in diphtheria, it lifts much more easily, and there is no constitutional disturbance. Further, there is more membrane present elsewhere than on the tonsils. However, a bacteriological examination is always most essential, as two further cases, not reported, were complicated to a greater or less extent by diphtheria.

Vincent's angina usually appears as a single lesion, most often confined to one tonsil, and which consists of a thick, dirty, grey slough, later breaking down into a deep ulcer. Examination of a direct smear will, of course, reveal Vincent's organisms (fusiform bacillus and spirochaete).

Treatment.

Diphtheria antitoxin has not the slightest influence on the condition. All the various throat applications and medicaments have been tried, but without result. I have, however, now come to regard a combination of brilliant green and crystal violet as practically a specific for the condition, the following being the formula used as a paint:

R			
Crystal violet	..	..	2%
Brilliant green	..	..	2%
Ethyl alcohol	..	..	48%
Water	..	..	48%

Fiat pigmentum.

This very quickly clears up the faucial lesions, but those of the gums and the gingivo-labial folds take longer, as is only to be expected, in view of the *cul-de-sac*, with its excellent conditions for the incubation of organisms and their spread.

Over-treatment, I am quite certain, was responsible for Case III running such a prolonged course, namely, four months, and, as soon as the combination of brilliant green and crystal violet was used less frequently the condition steadily improved. This should be applied to the lesions no oftener than twice daily, and possibly only once. In addition, the following *pigmentum* is applied twice daily:

R

Vini Ipecacuanhae.
Liquoris Arsenicalis, ana 12 mils (3iii).
Glycerini, ad 30 mils (3i).
Fiat pigmentum.

It need hardly be stated that, in order to prevent infection of others, sterilization of the patient's utensils *et cetera* should be rigidly enforced.

Addendum.

Since writing this paper I have seen a further case of this condition. This one, some twelve days after the onset of symptoms, became complicated by a left-sided facial palsy, which is steadily improving under autogenous vaccine therapy.

INFLUENZA VIRUS ISOLATED FROM AN AUSTRALIAN EPIDEMIC.

By F. M. BURNET, M.D., Ph.D. (London).

(From the Walter and Eliza Hall Institute, Melbourne.)

WITHIN the last two years, workers at the National Institute for Medical Research⁽¹⁾ have shown that from certain, but not all, of the outbreaks clinically labelled influenza, a virus can be isolated which produces characteristic symptoms in ferrets, and less readily in mice. All the strains which they have isolated in England appear to be serologically similar (Laidlaw, 1935),⁽²⁾ and in America Francis (1935)⁽³⁾ has also isolated ferret-pathogenic viruses of the same serological type as the English strains, from influenza epidemics in New York, Philadelphia and Porto Rico. The object of the present communication is to describe the isolation from a recent Melbourne epidemic of a virus which conforms to all the characters of the influenza virus of Smith, Andrewes and Laidlaw, and is inactivated by an antiserum against the English type.

During June, 1935, a mild form of influenza became widely prevalent in Melbourne, and a considerable number of cases (55) occurred amongst nurses in the Royal Melbourne Hospital. The epidemic started fairly suddenly, five nurses reporting sick on June 19 and two or three each day thereafter till the end of the month. Then only an occasional case occurred till July 14, when a second period of prevalence commenced, two or three fresh cases being reported each day for a week. The virus to be described was obtained from one of the first group of cases on June 26.

The history of the illness was as follows:

Nurse M.W. was seen complaining of malaise, nausea, shivers and substernal pain of one day's duration. This was associated with dryness of the throat and a frequent hard dry unproductive cough. Her head felt full, and there was some frontal headache. She stated that up to the time of the sudden onset of these symptoms she felt reasonably well, apart from a slight cough and a small amount of whitish sputum for three days.

On examination her temperature was found to be 38.7° C. (101.8° F.), pulse rate 115, and respiration rate 22 per minute. Her chest was clear of physical signs and, apart from a flushed face and a little injection of the posterior pharyngeal wall, there was very little to be discovered.

After two days in bed her temperature was normal and she was free from symptoms. She was discharged two days later and had no recurrence.

This history is very typical of the majority of the cases in the epidemic. The sudden rise of temperature with malaise and shiver following on a slight cough of two or three days' duration, the absence of physical signs, and the rapid improvement within two or three days were common to most cases.

The patients who did not report immediately were a little longer confined to bed. On examination a majority of these had medium râles, in some progressing to signs of definite consolidation.

A curious point was the frequent association with cutaneous infection, many of the patients having paronychia, sometimes multiple, or furunculosis. A number showed gross tonsillar infection, and one

eventually exhibited metastatic manifestations of streptococcal origin.

Material in the form of saline garglings and nasal washings was obtained from the patient soon after she reported ill. About a third of its volume of ordinary nutrient broth was added to facilitate filtration. The fluid was centrifuged and portion of the supernatant fluid was passed through an Elford membrane filter of average pore size about 0.8μ . Two ferrets were inoculated intranasally under ether anaesthesia, one with filtrate, the other with unfiltered supernatant fluid.

In forty-eight hours both ferrets showed the typical experimental disease, with fever, nasal discharge, "sneezing" and other signs of nasal obstruction, ruffled fur, and inactivity. The temperature chart of ferret 1 inoculated with filtrate is reproduced in Figure I. It shows the characteristic diphasic form. Normal ferret temperatures are rather variable around 38.9°C . (102°F .), and any rise above 39.4°C . (103°F .) can be regarded as significant.

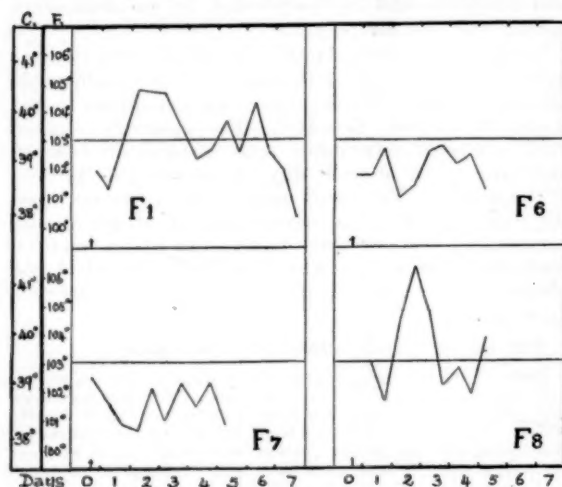


FIGURE I.

Temperature charts of ferrets inoculated intranasally. The line drawn at 39.4°C . (103°F .) indicates the upper limit of normal ferret temperatures. F₁—Membrane filtrate of throat washings from human case. F₆, F₇, and F₈—Supernatant fluid from emulsion of infected ferret nasal mucosa mixed with (F₆) immune horse serum IH2 from a horse immunized by Laidlaw, Smith, Andrews and Dunkin against the W.S. (English) strain of influenza virus; (F₇) serum from ferret 1 taken fourteen days after inoculation; (F₈) normal horse serum. Ferrets 1 and 8 show the typical two-phase temperature response of experimental ferret influenza.

Passage of the virus in the form of an emulsion of nasal mucosa from a ferret killed five to seven days after inoculation has been easily accomplished, and it is now in its eighth generation. Elford membrane filtrates from such emulsions have produced the typical syndrome on each of the two occasions on which they have been tested, and the infective nasal mucosa, when tested for sterility on blood agar, has usually been completely free of cultivable bacteria.

Through the courtesy of Dr. C. H. Andrewes, a serum was available from a horse immunized against the W.S. strain of influenza virus. This serum, IH2, is described in a recent paper by Laidlaw, Smith, Andrewes and Dunkin (1935).⁽⁴⁾ Virus in the form of supernatant fluid from a centrifuged 5% emulsion

of nasal mucosa, turbinates *et cetera* from a freshly killed ferret was mixed (a) with an equal volume of normal horse serum, (b) with serum IH2, and (c) with serum from ferret 1 taken fourteen days after inoculation and about one week after the temperature had returned to normal. (The mixtures were inoculated intranasally after standing twenty to thirty minutes at room temperature.) The temperature charts (Figure I) show that both the homologous and the English immune sera inactivated the virus completely, while the normal serum control mixture induced a typical attack of ferret influenza. This ferret showed the usual symptoms, the other two appeared normal throughout.

Material from first and third passage ferrets gave no lesions when inoculated intranasally in mice. An emulsion of the nasal mucosa from ferret 8 (fourth passage), however, induced pneumonic changes in the lungs of three out of four mice inoculated. From these lungs successful passage experiments have been made, both with supernatant fluids of centrifuged emulsions and with membrane filtrates. The lesions appear to be identical with those described by Andrewes, Laidlaw and Smith (1935).⁽⁵⁾ Several mice have died on the third to the fifth days after inoculation with almost complete hepatization of the lungs, the others show broncho-pneumonic changes of varying extent. A neutralization experiment with the Hampstead immune horse serum has also been carried out with this mouse passage strain.

A membrane filtrate was prepared from a 5% emulsion of infected mouse lungs in a mixture of equal parts of broth and saline solution. The emulsion was centrifuged and the supernatant fluid passed through a sand and paper pulp filter. This filtrate passed readily through a gradocol membrane of average pore size 0.8μ . Equal volumes of undiluted membrane filtrate and of varying dilutions of serum IH2 in saline solution were mixed, and after standing at room temperature for about half an hour were inoculated intranasally into mice lightly anaesthetized with ether. The results are given in the table, the lung lesions when the mice were killed five days after inoculation being expressed in the scale used by Andrewes, Laidlaw and Smith.

TABLE I.

Neutralization Test with Immune Horse Serum and Mouse Passage Influenza Virus.

Serum Dilution.	Lung Lesions in Mice.
Undiluted.	2 ¹ 0
1:10	3 ¹ 0
1:100	0 0 0
1:1,000	1 1 3
Saline control	4 4 3 3

0—No lesions; 1—small lesions less than 3 millimetres in diameter; 2—small patches of consolidation more than 3 millimetres in diameter; 3—extensive lesions; 4—complete or almost complete consolidation of both lungs usually found in dead mice. ¹ Probably non-specific lesions due to serum.

The virus is completely neutralized by a 1:100 dilution of serum IH2, and even 1:1,000 dilution has a significant effect, indicating its complete serological identity with the English W.S. strain against which this immune serum was prepared.

Discussion and Summary.

Up to the present, the only work on the influenza virus which has been reported, apart from that of the Hampstead workers, is contained in a recent preliminary report by Francis,⁽³⁾ who found that American strains produced similar lesions in ferrets and mice and were serologically similar to the English strains. The present report adds nothing new to the knowledge of the virus, but, taken along with the American findings, adds a substantial corroboration to the view expressed both by Laidlaw and Francis that typical epidemic influenza is a distinct disease entity due to one specific virus, the serological characters of which do not vary significantly from epidemic to epidemic or from country to country.

Acknowledgements.

I am greatly indebted to Dr. L. E. Rothstadt, Medical Superintendent of the Royal Melbourne Hospital, and to Dr. J. H. Bolton, Senior Resident Medical Officer of the Royal Melbourne Hospital, for permission to obtain material from cases under their care. I am also indebted to Dr. Bolton for the description of the epidemic amongst the nursing staff and for the clinical notes which are included in the paper.

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THE TREATMENT OF PROSTATIC OBSTRUCTION, WITH SPECIAL REFERENCE TO ENDOSCOPIC RESECTION.

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THOUGH in the past few years much literature has accumulated on the development of perurethral methods of treatment of prostatic obstruction, there has been little reported on personal experience of them in Australia.

This report is based on a series of seventy-seven consecutive cases of prostate obstruction treated during the eighteen months up till January, 1935. It compares those treated by suprapubic prostatectomy and those by endoscopic resection as far as the results attained during the six to eighteen months following operation are concerned (this is the period during which the majority of unsatisfactory results would be apparent), and it gives a summary of the indications used for selecting the method of treatment in this series.

Of the perurethral methods, resection by cutting electric current with a wire loop under vision has obvious advantages over its precursor methods, electro-coagulation, or electro-coagulation and punch.

There is easier visual control of bleeding points, and there is also less residue of coagulated tissue which becomes a nidus for promotion of infection and its results—the main bugbears of transurethral methods. Further, the amount of tissue removed under vision can be more reliably controlled.

To indicate the type of case included in this report the average age of the patients treated by transurethral resection was sixty-seven years, ranging from fifty-one to eighty-one, and of those on whom suprapubic prostatectomy was performed was sixty-eight, ranging from fifty-seven to eighty-two. Public hospital and private patients treated over this period are included. Eleven patients, all treated in public hospital, did not reach the stage of major operation. Of these eleven, three were admitted in a moribund state, four died during their preparation period, and four have remained as yet with a cystotomy.

Preparation of the Patient.

In this series all patients had a preliminary period of preparation of at least seven to ten days, or until the bladder was free of infection and renal function was within the operative limits. During this time, if possible, an indwelling catheter was maintained, and the bladder was washed out once or twice a day with one in 10,000 potassium permanganate solution, followed by instillation of a few ounces of one in 5,000 silver nitrate solution in distilled water.

In view of the fact that irritation of the indwelling catheter caused a development of pyelonephritis in one or two patients who had clean urine and good function, it is doubtful whether this procedure is advisable in every case before the minor procedure of perurethral resection. On the other hand, as is well known, owing to subsidence of prostatitis, drainage of the bladder in patients with acute retention brings about considerable reduction in the size of the prostate, and is a sound preliminary to minimize the risks of resection. When the indwelling catheter was not maintained, suprapubic cystotomy was performed and a de Pezzer catheter was inserted.

The indications for a cystotomy were: (i) A gross infection of the bladder; (ii) an unbalanced mental condition of the patient which did not allow the catheter to be maintained in position; (iii) signs of toxæmia appearing or increasing while the indwelling catheter was in place, owing to ascending infection. This, though infrequent, occurred particularly in the poorer risks with cardio-vascular degenerations; and if cystotomy was delayed after the first indication of increased toxæmia, a fatal result was liable to occur; (iv) a deficient renal function which was obviously great and when it was estimated that it would take longer than three weeks' drainage for the kidney to improve sufficiently for operation.

A suprapubic cystotomy is no obstacle to transurethral resection; in fact it is essential in preparation of those patients who have excessive infection and very poor renal function. In these more desperate cases it has the advantage also of lowering the risk of resection by providing prolonged drainage and rest to the bladder after operation while the bladder neck is healing.

During this preparation period the renal function was determined by Maclean's urea concentration test and by the blood urea nitrogen estimation or the urea clearance test. These tests were repeated every week.

Technique.

Suprapubic Prostatectomy.

The suprapubic route, with the usual hæmostatic stitches, suture of the bladder neck, and an indwelling catheter sewn in, as advocated by Harris, was used; and in approximately 50% of cases the bladder was closed by primary suture. In the remainder a suprapubic tube was inserted for one to three days with little prolongation of the healing time.

Endoscopic Resection.

Endoscopic resection was carried out by a Canny Ryle resectoscope, and the current was supplied by a spark gap type of generator. The obstructing medial ridge or lobe was cut out, and, if lateral lobes were present, as much as possible of the posterior part of the intravesical projection was removed. A number twelve English rubber catheter was tied in for three or four days after resection. Meticulous care was used in dealing with all bleeding points before removal of the instrument. Careful attention and special nursing in the immediate post-operative period minimize the risk of clots forming in the bladder. To prevent the formation of blood clots fifteen cubic centimetres (half an ounce) of 4% sodium citrate solution was inserted into the bladder and the catheter was clamped. The clamp was released every quarter of an hour for the first few hours and fresh citrate solution was inserted until the danger of clots collecting in the bladder had passed. The type of anaesthesia used in all cases was spinal. A very small amount sufficed to produce anaesthesia for endoscopic resection—as a rule insufficient to vary the blood pressure readings to any extent, and, as the operative procedure is minimal and the hæmorrhage during operation is negligible, there is no post-operative shock.

Selection of Cases.

In selecting cases for resection the matter was considered from two viewpoints: the type of prostate and the condition of the patient.

1. As far as the type of prostate was concerned, the cases regarded as suitable for endoscopic resection were those in which the obstruction was mainly limited to a medium lobe with anything up to moderate intravesical projection of the lateral lobes, a medium bar formation, small fibrous contracted prostate, carcinoma producing obstruction, also obstruction following prostatectomy due to a diaphragm formation at the bladder neck. These conditions were diagnosed after cystoscopic examination in all cases of prostatism in which it appeared on rectal examination that there was no very gross enlargement of the lateral lobes of the prostate.

It was considered inadvisable from the excellent results of suprapubic prostatectomy, especially when Harris's technique was followed, both as regards

mortality rate and morbidity period and final result, to vary this method of treatment as a routine for those patients with large lateral lobes or the larger generalized enlargements—a supposition which has been borne out by the immediate results in the few cases of this type of group 2 in which resection has been done. Whether removal of a greater mass of tissue from the lateral lobes in these cases would give a certain satisfactory result has not been tested.

2. In regard to the condition of the patient, included in this series are examples of the following: (i) An inferior general condition of the patient due either to severe cardio-vascular disease or to excessively poor renal function, which could not be sufficiently improved to enable a major operation to be undertaken without an added risk; (ii) chronic lung disease—tuberculosis or chronic bronchitis; (iii) diabetes; (iv) mental instability; (v) cases of retention due mainly to spinal cord disease in which there was also a demonstrable mechanical obstruction present; (vi) a few patients with generalized enlargement of the gland, who refused the major operation, were subjected to perurethral resection.

It is in some of this group that, by including the larger types of prostate, I have been able to gain valuable information of the risks and results, and to compare them with those of prostatectomy.

It will thus be seen that most of the larger generalized prostatic enlargements were treated by suprapubic prostatectomy. Many of the smaller generalized enlargements, together with the group of median bar and small contracted prostates *et cetera*, which is estimated as usually comprising about 10% of cases of prostatic obstruction and which is very difficult to deal with satisfactorily by suprapubic prostatectomy, comprised about half the cases treated by perurethral resection. The remainder were seriously affected by some other disease which would have intensified the risk of prostatectomy, and in many instances so far as to exclude it. It is very striking what can be done to increase the comfort of some of these very decrepit patients by careful preparation followed by resection. The same applies to many patients with carcinoma, doomed otherwise to spend the remainder of their lives with a suprapubic cystotomy tube.

Results following Suprapubic Prostatectomy.

Among the thirty-four patients treated by suprapubic prostatectomy during this period there was a mortality of one, due to an ascending renal infection (in this case the bladder had not been closed).

The average stay in hospital after operation was three weeks.

One of the bladders which had been closed had to be reopened for removal of clots. One patient developed an abscess in the wound; one developed a femoral thrombosis.

The ultimate result in all of these cases, followed up over a period of at least six months, was good restoration of micturition. In no case did post-operative obstruction occur. The satisfactory end result, its certainty and the recognized permanence of relief, make us definitely prefer suprapubic prostatectomy for the larger generalized enlargements,

particularly as it was in just this type of case that most trouble was met in obtaining a free passage by resection.

Results of Transurethral Resection.

Thirty-two patients were treated by transurethral resection.

Hæmorrhage.—No case of severe primary or reactionary hæmorrhage has occurred in this series. In six cases there was continuous hæmaturia of varying degree lasting three to ten days. This has never been of a severe degree. Any post-operative bleeding has been dealt with by the use of sodium citrate solution as described, to prevent intravesical clotting. No bladder has had to be opened as yet for the removal of clots.

One patient, who had a prostate with a large collar projection of the lateral lobes, had a fairly severe secondary hæmorrhage in the third week. This was considered to be largely due to the fact that the resection had not been successful in removing the obstruction for the reasons mentioned in the next paragraph. The consequent infection and distension of the bladder were responsible for the onset of the hæmorrhage. The clots formed, however, were evacuated through a catheter, and the bleeding was eventually controlled without cystotomy being performed. In the remaining cases there has been no trouble with hæmorrhage.

Failure to Produce Relief of Obstruction.—In two of the cases in which resection was performed, both being of the type with large generalized enlargements, a good gutter formation had been procured with under-cutting to some extent of the lateral lobes. It was found that when the catheter was removed the obstruction recurred, and finally both patients were subjected to suprapubic prostatectomy. One of these was the patient referred to above, who had severe secondary hæmorrhage in the third week. Operation disclosed in each instance a definite falling together of the lateral lobes and adhesion of their raw surface in the mid-line of the bladder neck posteriorly, causing exaggerated obstruction. When a finger was inserted into the prostatic urethra this adhesion could be felt to tear as the urethral margins were separated.

A similar condition, in a much minor degree, appears in the accompanying illustration of a specimen which was obtained from a patient who had been treated by resection, with complete relief of urinary symptoms, five months previous to his death following perforation of a peptic ulcer. The illustration shows a small band of mucous membrane of the vesical neck stretched across a good gutter formation after removal of the middle lobe, the bladder floor being left flush with that of the prostatic urethra. Apparently the lateral lobes had fallen together and the mucous membrane edges had become adherent above the indwelling catheter. As the œdema of the prostate subsided and the gutter became epithelialized, this mucosal band evidently remained and became drawn out as a thin string across the opening into the prostatic urethra.

Infection.—Mild infection of the bladder has usually followed resection—a symptomless pyuria or occasionally with slightly increased frequency. This clears within a few weeks. If after removal of the indwelling catheter on the third or fourth day the urine infection increases, it is controlled by daily washing out the bladder.



FIGURE I.

Post mortem specimen from a patient who died from other cause.

It is essential to remove sufficient of the obstructing mass to give a free urinary outflow; if this is not done, residual urine will persist after removal of the catheter with secondary infection. This infection is serious



FIGURE II. (Explanatory diagram to Figure I.)

The bladder neck viewed from the interior, five months after transurethral resection. a—Remainder of intravesical projection of the lateral prostatic lobes. b—Gutter formed by resection of the medial lobe leaving the vesical neck flush between the prostatic urethra and floor of the bladder. c—Mucosal band across urethral orifice from one lateral lobe to the other. d—Bladder wall.

and most difficult to overcome without constant drainage and washing out the bladder. In one case it persisted until the obstruction was fully removed by further resection; in two cases prostatectomy had to be performed. No case of ascending pyelonephritis has occurred in this series.

Mortality.—There have been no deaths due to the operative procedure or following complications in this series, in spite of the fact that it includes a number of the worst risks.

Five patients have died since their operation, the cause being as follows: (i) Metastases from carcinoma of the prostate. (ii) Sudden cardiac failure during a fight in which the patient became involved two months after his operation. (iii) Peritonitis following rupture of a peptic ulcer five months after the prostatic resection. (In all these urination was perfectly satisfactory up till the time of death.) (iv) Tuberculosis of the dorsal spine with paraplegia, which was the cause of his urinary retention. This patient also had a median bar formation, resection of which caused a reduction in his residual urine for a few months, after which it increased again. (v) Cardiac failure with severe hyperpiesis, grossly enlarged heart, and advanced Parkinson's disease. The myocardial failure in this case was hastened by moderate infection of the bladder after resection.

Results of Relief of Urinary Symptoms.

In two cases (described above) urination was not established, and prostatectomy was eventually performed. In three further cases on removal of the catheter four days after resection, it had to be reinserted for a further period to allow the lateral prostatic lobes to shrink before satisfactory emptying of the bladder was finally established.

The later results in the remaining twenty-five cases have been checked by a follow-up for several months after resection and a recent inquiry from practically every patient. Fifteen patients have no urinary symptoms and no demonstrable residual urine. Cystoscopy in a few of these has shown a perfectly clear passage. Three patients have evidence of a mild chronic infection of the bladder, shown by slight pyuria and a nocturnal frequency of one to two times.

The patients who have not had entire freedom from residual urine constantly since their resection are the following:

1. One patient had a small fibrous prostate associated with strictures in penis and bulb which had first been dilated without giving free urination before resection; recurrence of obstruction occurred eighteen months later. The patient had not reported for continuance of treatment of the strictures. After redilatation cystoscopy revealed no obstruction at the bladder neck, and free urination was restored.

2. A second patient, who had a moderate-sized general enlargement, developed a further attack of acute retention seven months after resection. Following a second resection, no further trouble has occurred, and there is no residual urine.

3. A patient with very advanced cardio-vascular disease and a permanently over-distended bladder with overflow incontinence and infection was given relief for over a year, and his nocturnal frequency was reduced to twice. Then, following an attack of shingles lately, the amount of his residual urine and frequency has increased again, and he has a chronic cystitis.

4. A patient with cerebral thrombosis and partial hemiparesis and retention of urine had a pronounced median bar: resection of this had practically no effect on the emptying of the bladder.

5. A diabetic who had a residual urine averaging 480 cubic centimetres (sixteen ounces) had it reduced to an average of 120 cubic centimetres (four ounces). He is now able to do his normal work.

6. In one case insufficient removal was due to instrumental failure before completion of removal of sufficient tissue. The patient required a second treatment six weeks later to eliminate residual urine.

In one case the final result has not been confirmed. The imperfect results are mainly due to associated conditions and possibly failure to remove sufficient tissue.

The question of permanence of results of resection cannot be discussed on so small a series over so short a period.

Summary.

A group of cases selected for transurethral resection of the prostate out of a consecutive series of prostatic obstruction is discussed.

Though the results of restoration of urinary function may not appear as satisfactory as those following prostatectomy, it must be remembered that the cases selected for resection included partly all those types of obstruction that give the least satisfactory results by any method of treatment and partly a group of patients who owing to their excessively poor general condition would certainly not all have stood a major operation.

The symptomatic relief afforded this latter group is emphasized.

The need for adequate pre-operative and post-operative treatment is stressed, particularly for the avoidance of possible complications of hæmorrhage and infection.

The results and some of the causes of failure to attain a perfect result are pointed out.

THE TREATMENT OF ACNE VULGARIS, WITH SPECIAL REFERENCE TO X RAYS.¹

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Acne vulgaris is one of the commonest skin diseases which comes within the province of the general practitioner and the dermatologist. It can also be one of the most disfiguring and annoying conditions, particularly to young females, who not infrequently acquire an inferiority complex from its presence. In consequence, early and efficient treatment is of the utmost importance, not only from the point of view of removing the unsightly papules, but also of preventing the scarring which frequently follows in their wake. Before the treatment is considered, a brief *résumé* of the aetiology and clinical types commonly encountered will be helpful to a proper conception of the curative methods to be discussed.

Ætiological Factors.

Age Incidence.—*Acne vulgaris* is preeminently a disease of adolescence, when there occurs a hyperactivity and imbalance of the secretory powers of

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the sebaceous glands. As a result, slight deviations from the normal in their blood supply are sufficient to upset the quality and quantity of their secretion. This disturbance of the normal equilibrium allows the previously saprophytic *acne bacillus* and *Staphylococcus epidermidis albus*, which are normally present on the skin, to become parasitic. The deviations in the blood supply are frequently caused by disturbances in the alimentary tract. *Acne* eruptions usually appear between the ages of twelve to eighteen years and tend to disappear between twenty-five and thirty. Less commonly, the condition may appear in adult life, particularly in women between the ages of twenty-five and forty. In the latter type, endocrine disturbances may also play a part. The even more rare variety which occurs in children will not be dealt with in this paper, as it is produced by rubbing the skin with oily substances such as camphorated oil, and is not an example of true *acne*.

Sex Incidence.—*Acne vulgaris* occurs slightly more frequently in males than in females, particularly is this true of the nodular type. Also, for some unexplainable reason, females are rarely, if ever, affected on the back or chest unless the face is involved at the same time. In males, however, the whole or part of the back and chest may be affected, while the face remains clear.

Abnormalities in the Alimentary Tract.—Focal infections of the tonsils or teeth, constipation, excess of carbohydrates or fats, and possibly a lack of sufficient vitamins in the food, may all contribute to the production of *acne* eruptions.

Menstrual Disturbances.—Exacerbations may occur during or just before menstruation.

Disordered States of the Blood.—Disordered states of the blood are said by some authorities to predispose to *acne*, for example *anæmia*, *diabetes* and *tuberculosis*.

Familial Tendencies.—Many individuals inherit a thick greasy skin and others a thin, dry, easily irritated skin. This tendency often persists throughout life, and if it is supplemented by imbalance of sebaceous gland secretion, *acne* lesions result.

Certain Drugs.—Iodides and bromides tend to produce *acneiform* lesions, for example patent medicines to purify the blood, sedatives *et cetera*.

Certain Occupations.—Tar, chlorine, and oil *acne* may occur in people who work among these substances.

Pathogenic Organisms.—The organisms found in *acne* lesions are the *acne bacillus* in the comedo and papules, and the *Staphylococcus epidermidis albus* when suppuration occurs. The *pityrosporon* of *Malassez* may also be present, but in more or less insignificant proportions, unless *seborrhæic dermatitis* exists at the same time.

Clinical Types.

Acne Simplex.—*Acne simplex* may be divided into *acne punctata*, in which the lesions are mainly comedones, and *acne papulosa*, in which the inflammatory process is more pronounced. This type is

usually accompanied by oily *seborrhœa*, and responds well to X rays.

Acne Pustulosa.—*Acne pustulosa* shows marked superficial pustulation, and is commonly found in young females with fine, delicate, highly coloured skins. As the reaction is more acute than in the previous type, X rays are not quite so readily tolerated.

Acne Erythematosa.—Females with gastro-intestinal or menstrual disturbances are mostly affected by *acne erythematosa*, which is more liable to exacerbations and remissions. There is an accompanying erythema of the face, in addition to *acne* lesions, and here again X rays are not so well tolerated.

Acne Atrophica.—Pits and scarring form the greater part of the clinical picture in *acne atrophica*.

Acne Indurata.—In *acne indurata* deeply situated abscesses are present, accompanied by follicular destruction and ensuing scar formation. Sometimes indurated bluish-red nodules are left which may be the seat of recurring attacks of acute inflammation going on to suppuration. Scarring may be smooth, atrophic and depressed, irregular or hypertrophic. The disfigurement caused is usually permanent. This type commonly occurs on an oily skin and is more beneficially influenced by X rays than any other form of *acne*.

Cystic Acne.—Cystic *acne* is caused by a form of tissue reaction about small hard deposits of sebum which act as foreign bodies in sebaceous ducts or glands and bring about the formation of cysts. These cysts are much more sensitive to X rays than the ordinary wen, with which they are almost identical.

Acne Cheloid.—*Acne cheloid* is characterized by hypertrophic scarring and may occur in the site of papules, *acne* cysts or as *dermatitis papillaris capillitii*, which occurs on the nape of the neck. The underlying cause of the latter condition is the presence of large comedones forming small tunnels beneath the skin. A certain amount of infection leads to follicular papules, pustules, and sometimes cysts. The lesions later tend to coalesce and form cheloidal thickenings.

Acne Artificialis.—The form of *acne* known as *acne artificialis* may be caused by the ingestion of quantities of bromides or iodides which produce irritation during the process of excretion through the sebaceous follicles. Occlusion of follicular orifices by tar and oils, particularly paraffin oil, is a common local cause. Certain chlorine workers also suffer from an *acneiform* eruption.

Neurotic Acne.—Neurotic *acne* is a type of superficial *acne* occurring in neurotic young girls who produce scarring by continually picking and scratching the lesions. *Acne necrotica* and *acne cachecticorum* will not be dealt with, as they do not belong in the same category as the aforementioned types.

The areas of predilection in general for *acne* are the face, back, neck, chest, shoulders, arms, and occasionally the buttocks. These areas are all richly supplied with sebaceous glands, the secretions of which help to maintain the pH value of the normal skin sweat at approximately 4.5. It is of interest

to note that acne lesions are rarely, if ever, seen in the axillæ where the apocrine glands together with the naturally diminished facilities for evaporation maintain a less acid sweat covering for the skin than the areas commonly selected by *acne vulgaris*.

Treatment.

The treatment comprises constitutional and local measures, which should always be combined.

Constitutional Treatment.

Constitutional treatment consists primarily of attention to the general health. Focal infections should be sought for and eliminated. Disturbances of the gastro-intestinal tract, particularly constipation, must be corrected, and menstrual or glandular disturbances should receive attention. Administration of mixed gland preparations is often beneficial in the type of acne showing exacerbation at period time. Plenty of fresh air and moderate physical exercise are helpful in all types of cases.

Internal Treatment.

Iron and arsenic are the two most useful drugs and should be combined with laxatives if constipation is present. A very useful prescription is the following: *Liquoris Arsenicalis* 0.18 mil (three minims), ferrous sulphate 0.12 gramme (two grains), magnesium sulphate 2.0 grammes (thirty grains), chloroform water to 15 cubic centimetres (half an ounce), taken thrice daily after meals with water. Iodides and bromides should be prohibited as a routine. Vitamin preparations such as "Halivol", "Abidon" *et cetera* are sometimes useful.

Vaccines have never given very satisfactory results in my hands, whether autogenous or of a stock variety. Some authorities claim good results with non-specific protein therapy, but this again is not very convincing.

Dietary Measures.

With regard to diet, opinions appear to differ, the general tendency now being to prescribe a diet which is not quite so restricted as was formerly advocated. Whitfield⁽¹⁾ wisely points out the inadvisability of cutting down the diet too heavily in rapidly growing youth. Roxburgh⁽²⁾ is of the opinion that diet makes very little appreciable difference in the treatment of acne. This has also been my experience with the exception of cheese, cocoa, chocolates and white bread, all of which I prohibit as a routine. Other articles which may be taken in lesser quantities on theoretical grounds are fats, starchy foods and sweets, also hot tea, coffee, alcohol, soups and other articles capable of producing congestion of the face.

Local Treatment. (Topical Applications.)

One of the first things that should receive attention is the *pityriasis capitis* which so commonly accompanies *acne vulgaris*. This may be accomplished by one of the lotions or ointments ordinarily used for the condition, and should never be neglected. There are numerous local applications in use for the affected glabrous skin, the best of which are usually lotions, as they tend to have a drying effect on greasy

skins. The suppurative cases are best treated, in the beginning, with fomentations of one part in four thousand aqueous solution of perchloride of mercury night and morning after washing the face with soap and water. Whitfield recommends the addition of salt in the proportion of two ounces to a quart to make a hypertonic solution for the foment. Later a calamine lotion (without glycerine) to which is added 2% of yellow oxide of mercury and 4% of borax, is applied night and morning. When pustulation is not the predominant feature, sulphur is by far the most useful drug to employ. Two of the most reliable prescriptions are: Sulphurated potassium 0.6 to 1.2 grammes (10 to 20 grains) and zinc sulphate 0.6 to 1.2 grammes (10 to 20 grains) to 30 cubic centimetres (one ounce) of calamine lotion; or calcium hydrate 15.0 grammes (half an ounce), precipitated sulphur 30.0 grammes (one ounce), water to 300 cubic centimetres (10 ounces). The latter mixture is boiled to 180 cubic centimetres (six ounces) and applied one part in five of water. Before these preparations are used the face should be well lathered with hot water and a liquid soap, for example soft soap 30 cubic centimetres (one ounce), eau de Cologne 8 cubic centimetres (two drachms), and rectified spirits 8 cubic centimetres (two drachms). The lather is rinsed off and comedones and pustules are evacuated with an enucleator. The skin is then swabbed over with a lotion containing acetone and eau de Cologne or spirit, of each 30 cubic centimetres (one ounce) in 120 cubic centimetres (four ounces) of distilled water. This procedure serves to remove any residual greasiness. The sulphur lotion is then dabbed on, and massaged into the emptied follicles with the fingers. The whole routine should be adopted night and morning.

If after a week or more the skin becomes uncomfortably dry, an emollient cream, for example salicylic acid 1% in *Unguentum Aqua Rosa*, should be inunctioned once or twice weekly as required. This materially helps the patient's comfort during the "peeling" stage of treatment. During the daytime some patients, particularly women, are unwilling to use messy preparations, in which case a cosmetic powder may be employed which can be tinted to any desirable colour. The following prescription is useful: Kaolin, 12 parts; magnesium carbonate, 20 parts; zinc oxide, 25 parts; starch, 40 parts; precipitated sulphur, 10 parts. In patients with dry skins, cleansing should be performed with superfatted soaps or ointments instead of lotions, for example liquid paraffin and glycerine of each 70 parts, *Aqua Hamamelidis* and *Aqua Camphoræ* of each 20 parts. In very resistant cases, if X rays are unavailable, peeling pastes may be employed, for example resorcin, 4 to 12 parts; zinc paste to 100 parts, or β naphthol, 3 to 12 parts; precipitated sulphur, 12 parts; *Sapo Viridis*, 12 parts; *Unguentum Aqua Rosa* to 100 parts. These preparations must be used cautiously and are applied for one to two hours a day, the time being increased according to skin tolerance. A soothing cream should be applied for several days when a brisk reaction has been produced.

Large cystic lesions should be incised under a local anaesthetic and the contents curetted out. A diathermy or cautery knob is then inserted, and the lining of the cyst is destroyed. This method insures against recurrence with a minimum of scarring.

Ultra-Violet Irradiation.

Ultra-violet rays are used in the treatment of acne by some authorities, but the results are rarely permanent.

X Rays.

The use of X rays in the treatment of *acne vulgaris* is by far the most potent factor which the dermatologist has at his command. By their use this extremely stubborn condition can be cleared up satisfactorily in approximately 95% of cases. The long experience of authorities such as Mackee,⁽³⁾ Ball,⁽⁴⁾ Hazen,⁽⁵⁾ Andrews,⁽⁶⁾ Parkhurst,⁽⁷⁾ Niles⁽⁸⁾ and numerous others in the treatment of many thousands of cases has proved this fact beyond doubt. With general treatment and external applications it is a high estimate to place the number of cures at 5%, in the length of time it takes X rays to perform this service. Complete cure can be obtained without X rays in from 40% to 60% of cases over periods varying from six months to two years. This is always provided that the patients do not become discouraged and give up treatment, or commence to drift from one doctor to another. During all this time, fresh scars are being added to those already present. The authorities previously mentioned place the percentage of failures with X rays at 5%, with the exception of Parkhurst, who quotes 1.2% of failures, and Whitfield, who believes that X rays will cure any case of acne. Whitfield also draws attention to the fact that too small doses are inefficient in their results and that "full doses" may be followed by telangiectases. There appears, however, to be a negligible amount of risk, provided certain rules and precautions are strictly observed. Mackee's statement that he has seen no ill effects follow the use of X rays as used by himself in several thousands of cases spread over many years, seems to support this contention.

Relapse occurs in varying proportions of from 10% to 20% of cases treated with X rays, but is mostly seen in people of low general health or near the age of puberty. Several fractional doses of X rays are usually sufficient to rectify the great majority of these cases. Relapse also occurs in patients treated without X rays in approximately the same proportion. The definite advantages of X rays may be stated briefly as follows: speedy cure is obtained; scarring is reduced or prevented; troublesome applications are avoided; an inferiority complex so frequently found in women is soon overcome; the difficulty of obtaining continued cooperation of the patient for periods varying from six months to two years is avoided; and lastly, a very much higher percentage of cures is obtained than by any other method of treatment.

Some people have claimed that X rays produce more scarring and an increased growth of hair on the face. From long experience all the authorities

previously mentioned discount these claims. Niles demonstrated in a series of cases in which one side of the face only was treated with X rays, that scarring was not increased. Also, it may be mentioned that baldness would not be so prevalent among men if X rays were capable of producing hair growth. The reason these impressions are gained is explained by the fact that the scars which were present before treatment was commenced become more apparent after the disappearance of the acne papules. Also, a downy growth of hair may become more noticeable after disappearance of the lesions, or it may be increased by the disease itself and the stimulating applications employed in treatment.

Variations in individual susceptibility are mostly due to age, texture of the skin, complexion and the area of the body affected. For example, the skin of the face has a lower tolerance to X rays than the skin of the back, and the skin around the angles of the mouth, the chin, and centre of the cheeks has a lower tolerance than that of the rest of the face. Older people have a greater tolerance than young people; also less wrinkling from dryness ensues in fleshy people than in thin people. Low tolerance or indications that the skin has almost received the maximum safe amount of radiation are denoted by irritability to friction or heat, wrinkles around the corners of the mouth or chin, excessive dryness, diminution of the oily sebaceous secretion and the absence of fresh lesions. Erythema should never occur, but if it does, treatment must be interrupted until it subsides. Pigmentation is not an indication to cease treatment, as it fades away of its own accord in from several weeks to several months after the completion of treatment.

X Ray Dosage.—The dose commonly employed by most authorities is one-quarter of an erythema dose ($\frac{1}{4}$ E.) delivered once a week up to twelve or sixteen treatments. Andrews, however, states that eight doses of $\frac{1}{4}$ E. are sufficient in many cases. He has found it necessary to give only as many as sixteen doses in recalcitrant cases when erythema, dryness or wrinkling of the skin is absent. In people who come from a long distance $\frac{1}{4}$ E. or $\frac{1}{2}$ E. may be given every two weeks, or $\frac{1}{4}$ E. every three weeks, but a total of 4E. should never be exceeded. Some authorities give further doses if a relapse occurs, but not before a period of twelve months has passed.

Over the last six years I have treated a series of one hundred and two patients with weekly $\frac{1}{4}$ E. doses delivered with a "Metalix" tube. Clinical cure was obtained in approximately 90% of these cases with only eight doses. A further 10% required another four doses after a rest interval of one month. So far I have been fortunate in obtaining complete clinical cure in all cases treated by this method, although, on reading the statistics of others, I realize that this is more due to good luck than to good management. Approximately 10% of relapses have occurred within twelve months among the patients who received only eight treatments; four further applications of $\frac{1}{4}$ E. satisfactorily cleared up the recurrent lesions. All my exposures, with the exception of five, were given with unfiltered rays or with a 0.3 millimetre of aluminium filter. In

five very indurated nodular cases, I employed a one millimetre of aluminium filter.

It is of the highest importance that the doses should be accurately measured in order to avoid a possibly deleterious cumulative effect from over dosage. I have controlled my erythema dose by four different methods, namely: the Sabouraud-Noiré pastille, a "Victoreen" dosimeter, and a Mueller's hammer dosimeter with both the superficial and deep therapy ionization chamber attachments. When the deep therapy ionization chamber with the Mueller dosimeter is used, my erythema dose corresponds with a reading of 450 R units. The "Victoreen" dosimeter also registers 450 R units for an erythema dose. With the superficial therapy ionization chamber, the Mueller dosimeter registers 230 R units to an erythema dose.

Before the treatment was commenced, the tolerance of a number of patients was tested by irradiating an area of one square inch on the inner thigh, $\frac{1}{2}$ E. being delivered. In the treatment of the face for which an extra 20% should be allowed for secondary radiation, or the back for which an extra 25% should be allowed, no allowance for the secondary radiation was made in my cases. This means that when I gave eight $\frac{1}{2}$ E. doses to the face or back, my patients actually received from 20% to 25% more than the originally calculated dose, that is approximately $2\frac{1}{2}$ E. Cognizance of this fact may account, in some measure, for my success with an apparently smaller amount of radiation than that given by others. The factors I employ are: 105 kilovolts (peak), 4 milliamperes of current, 10 inches focal skin distance, a time of exposure of 56 seconds.

General routine measures were combined with radiation treatment and sometimes weak local applications. It is my practice in very mild cases to commence with treatment other than radiation, also in young patients around the age of puberty. As recurrences are more common in young adult people, it is better to withhold X rays, unless much scarring is likely to ensue. To five very blonde young women, of the series mentioned, and to three dry-skinned individuals, I gave only four $\frac{1}{2}$ E. doses of X rays at weekly intervals, followed by four $\frac{1}{2}$ E. doses. Exposure to sunlight or ultra-violet rays was prohibited while the patients were undergoing X ray treatment. Prior to each treatment, a careful examination was made to ascertain whether signs of idiosyncrasy or low tolerance were present. The skin was cleansed with a spirit soap solution and water, and pustules and comedones were evacuated. All greasy face creams, rouge and other cosmetics were forbidden to women. The following substitute was employed: Zinc oxide, 15.0 grammes (half an ounce); lanoline, 12.0 grammes (three drachms); rice starch, 240.0 grammes (eight ounces); bismuth subcarbonate, 30.0 grammes (one ounce); magnesium carbonate, 60.0 grammes (two ounces); titanium oxide, 12.0 grammes (three drachms); talc, 60.0 grammes (two ounces); powdered orris root, 30.0 grammes (one ounce); odour and colour as required. This powder assists in some measure to overcome the rooted objection of many young girls to abstain from the use of cosmetics, as they insist that the unsightly

pimples must be hidden at all costs; at the same time it contains no harmful or irritating ingredients. If much dryness occurred during the treatment, 1% of salicylic acid in *Unguentum Aquæ Rosæ* was employed every second or third night.

It has been my experience that doses of less than $\frac{1}{2}$ E. are insufficient to cure the average case of acne. If $\frac{1}{2}$ E. doses are used, more reaction follows than with $\frac{1}{2}$ E. doses (this applies to doses in which allowance is or is not made for secondary radiation, provided both $\frac{1}{2}$ E. and $\frac{1}{2}$ E. doses are treated similarly in this respect), and consequently there is greater risk of later sequelæ. Some authorities give three weekly doses of $\frac{1}{2}$ E., followed by a month's rest, which is again followed by three more doses of $\frac{1}{2}$ E. In this way the cumulative effect of the eight consecutive $\frac{1}{2}$ E. doses is lost, and the skin recovers with a certain amount of increased resistance so that the end results are not so satisfactory. I have rarely seen a patient with *acne vulgaris* remain permanently clear after the application of only four $\frac{1}{2}$ E. doses of X rays, or three $\frac{1}{2}$ E. doses, although clinical cure may take place temporarily.

Technique of Irradiation.—When treating the face, I use the "Metalix" glass applicators with diameters of from 10.0 to 12.5 centimetres (four to five inches) according to the size of the face and areas affected. The centre of the applicator is directed at the centre of the cheek, first on one side then on the other, so that each dose is delivered at right angles to the other. The applicator is placed with the edge of the glass at a distance of 2.5 centimetres (one inch) from the skin, thus making a focal skin distance of ten inches. The overlapping from each exposure gives an approximately even distribution on the chin and neck. If the forehead is affected, a separate dose is delivered with the appropriately sized applicator. The lips, eyes and eyebrows are shielded with tinfoil when the cheeks and neck are irradiated, and the hair also, if the forehead is treated. In this way much of the heavy shielding necessary with a Coolidge tube is eliminated. When large areas on the chest or back are treated, no applicator is employed, and the centre of the X ray beam is directed at points 22.5 centimetres (nine inches) apart. For example, the whole back can be treated in five exposures, one over each scapular region, one in the centre of the back, and one just above each buttock, so that each point is 22.5 centimetres (nine inches) from its neighbouring points.

After-Treatment.—To improve the cosmetic result, and also as a prophylactic measure against future recurrence, the patient is instructed to use a superfatted sulphur soap. In addition, a cold cream containing 1% of salicylic acid may be used at night if noticeable dryness of the skin is present. In cases which are followed by unsightly scarring, the following ointment should be applied night and morning: Pepsin, five parts; boric acid, three parts; phenol, one part; "Vaseline" to 100 parts. In cases followed by definite pigmentation, the following prescription may be applied at night: Perhydrol, two parts; ammoniated mercury, one part; lanoline, twelve parts; "Vaseline", 20 parts.

Summary.

1. The main aetiological factors connected with *acne vulgaris* have been enumerated.

2. The common clinical eruptions encountered in *acne vulgaris* have been described, and attention has been drawn to those eruptions which are more amenable to X ray treatment and those in which X rays are not so well tolerated.

3. Under the heading of treatment, constitutional, internal and dietary measures have been briefly outlined.

4. Local treatment has been dealt with under the headings of topical applications (in which only a few of the most commonly employed applications have been mentioned, also the general routine associated with their use) and X ray treatment.

5. A number of authorities have been quoted whose experience demonstrates the definite advantages which X rays possess over other forms of treatment for *acne vulgaris*.

6. Attention has been drawn to the percentage of cures (95%) obtained with X ray treatment, mostly in three or four months, compared with the percentage of cures (40% to 60%) obtained without the use of X rays in from six months to two years.

7. The advantages obtained by the use of X rays have been detailed as follows: rapidity of cure, reduction or prevention of scarring, avoidance of troublesome applications, elimination of the inferiority complex in women, the lack of necessity for continued cooperation of the patient for long periods, and the very much higher percentage of cures.

8. Claims that X rays produce more scarring or hair growth have been discussed.

9. Variations in individual susceptibility and signs of over-dosage or low skin tolerance have been described.

10. The X ray dosage most commonly employed in the treatment of *acne vulgaris* has been detailed.

11. The results in 102 cases treated by myself with one-quarter erythema weekly doses of X rays have been described.

12. The methods by which my erythema dose has been standardized and the corresponding number of R units registered by three dosimeters have been detailed in addition to the X ray factors employed.

13. A possible explanation has been given for the higher percentage of cures obtained by me with an apparently smaller amount of X rays than that employed by other workers.

14. The advisability of combining general routine measures with X ray treatment has been stressed.

15. The technique of irradiation with a "Metalix" tube has been briefly described.

16. A short outline has been given of the after-care following fractional X ray treatment.

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Reports of Cases.

RECOVERY FROM SEPTICÆMIA AFTER
INTRAVENOUS ADMINISTRATION OF
OLIVE OIL EMULSION.

By JAMES A. LAWSON, M.B., Ch.M. (Sydney), F.R.A.C.S.,
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I REPORT briefly the following case on account of the recent interest that centres around intravenous olive oil therapy for acute infections such as pneumonia, septicæmia and scarlatina.

On August 21, 1935, I was called in consultation to see D.B., a male, aged ten years. On inquiry I learned that the patient had been a normal healthy boy with a perfectly normal history, except that he had "tonsils and adenoids", which were removed on August 16, 1935. The operation and the administration of the anæsthetic were quite free from trouble.

During the night of August 16, 1935, the patient was restless and the maximum pulse rate recorded was 140 per minute. On the following day the temperature and pulse were both elevated, and during the evening the patient was delirious.

On August 18 and 19 the temperature and pulse were still rising higher. The patient's general condition was worse. He was muttering and delirious during the night. On August 20 the parts around the tonsil beds were very inflamed; he had offensive sputum and a cough, and a swelling on the left side of the face was reported. The pulse rate and temperature became higher. Under ether anæsthesia an incision was made in the left side of the fauces. No pus was found. The patient was given anti-streptococcal serum and the usual hypodermic stimulants. Throat swabbing was done. *Staphylococcus aureus* was found, but no Klebs-Löffler bacilli. The patient was delirious and muttering, and called out a great deal during the night.

On August 21 he was seen by me for the first time at 12.30 p.m. His condition was as already described. The chart showed a steadily rising temperature with a daily drop to normal. The highest temperature recorded for the day was 40° C. (104° F.); the highest pulse rate was 160. Breathing was distressed and noisy, the chest was full of moist sounds and not one clear patch of lung could be found. The general condition of the child was critical, and a diagnosis of septicæmia was made. The prognosis was regarded as grave. Unfortunately it was not practicable to obtain a blood culture till it was too late to be of any value.

The only treatment given was a three-hourly intravenous injection of olive oil emulsion, followed by a daily maintenance dose after the temperature came down to normal.

Within seven hours there was a remarkable improvement in the temperature, which dropped about four degrees and remained at that level for most of the day. On the following day the temperature went down to normal, after which convalescence was rapid and uneventful.

It is explained by the pioneers of this form of treatment that as soon as the patient has an infection there is necessarily some formation of immune bodies. These are overwhelmed by the excess of free circulating toxins. When toxin is adsorbed to olive oil globules its powers for harm are at an end and then the patient's immune

bodies take the field. The adsorbed toxin is taken to the fat depôts of the body and is slowly oxidized and rendered innocuous.

I make no comment on the case, as I have no doubt that a series of cases will soon be published and that comments will then have some statistical value.

Acknowledgements.

My thanks are due to: (i) the authorities of the Liverpool State Hospital for permission to publish this case, (ii) the nursing staff for taking special charts and observations, (iii) Dr. A. J. Fitzgerald for donating the emulsion.

FRACTURE-DISLOCATION OF THE ANKLE TREATED WITHOUT SPLINTS.¹

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Honorary Surgeon, Royal Prince Alfred Hospital,
Sydney.

H.B., a MALE, aged twenty-eight years, a motor driver, was admitted to hospital on March 14, at 9.20 a.m., with a history that two hours previously he had fallen face first out of his motor lorry. His left foot had caught by the heel on the running board, and he had sat back on his foot and had then slipped into a "V" gutter.

On examination the left foot had been obviously dislocated backwards at the ankle joint. The tibia had done its best to come through the skin. Manipulation was carried out under ether anaesthesia. The foot was placed over the end of the bed, with the leg on a pillow. One end of a short roller towel was placed over the leg, and the surgeon's foot was put in the other end. The dislocation was reduced quite easily. It was observed that the ankle was then in excellent position. Slight pressure backwards showed that there was no tendency to recurrence of dislocation. It was thought that the fibula had been broken.

X ray examination revealed fracture of the medial malleolus and of the lateral malleolus, with slight backward displacement of the distal fragment of the fibula.

It was decided that fixation was not necessary. The limb was placed with the heel resting on a soft pillow. The patient was informed in unequivocal language that it was his foot and that the result depended on himself. He was instructed to move the foot voluntarily from the beginning of treatment. The patient was very willing and moved his foot each day, being encouraged by the surgeon and, when he was not there, by the resident medical officer. An outside iron was ordered in anticipation of later ambulatory treatment.

The iron was not available till four weeks and five days after the accident. On this day the patient got up and walked quite well. He left hospital five weeks after the injury and resumed his occupation three weeks later, so that the total period of incapacity was eight weeks only. He continued the use of the iron, but discarded it at the end of another two weeks.

When shown at the Branch meeting the patient walked quite briskly across the room and back. He then removed both boots and socks, and flexed, extended, inverted and everted each foot. The range of movement at the injured ankle was almost as great in all directions as that at the uninjured joint.

The reason for the good result was the use of free active (voluntary) movement from the start and the avoidance of prolonged fixation, passive movement and massage.

¹The patient described herein was shown at a meeting of the New South Wales Branch of the British Medical Association on May 23, 1935.

Reviews.

THE SYMPATHETIC NERVOUS SYSTEM.

"THE CLINICAL ASPECTS OF VISCERAL NEUROLOGY, WITH SPECIAL REFERENCE TO THE SURGERY OF THE SYMPATHETIC NERVOUS SYSTEM" is the full title of a monograph by W. K. Livingston, of the University of Oregon, United States of America.¹ The observation of three hundred patients in whom visceral nerve surgery has proved of therapeutic value constitutes the framework of the text. In order to avoid confusion regarding the meaning of the term "visceral" the writer explains that he applies it to that part of the nervous system derived from the splanchnopleure as opposed to the somatopleure and considers it more comprehensive and satisfying than the commonly used terms "vegetative", "involuntary", "sympathetic" and "autonomic".

The book is divided into three parts, the first dealing with anatomy, physiology and pharmacology, along with visceral pain and the normal regulation of blood vessels; the second with the various morbid states suitable for treatment; and the third with surgical procedures.

The second part will perhaps be read with most interest, because it contains a description of all conditions hitherto found amenable to sympathetic nerve surgery—Raynaud's disease, *angiitis obliterans*, scleroderma, Hirschsprung's disease, sundry pain syndromes, bladder dysfunction, and so on—and the writer's own observations on the results of treatment in these conditions.

The guiding principle is rightly and repeatedly emphasized, that all conditions to which relief may be afforded have this one common character: excessive contraction or spasm of non-striated muscle. Therefore, whether it be release from pain, dilated colon, or localized ischaemia which is sought, success will inherently depend upon release of blood vessels from constriction. It follows as a corollary that this vaso-spasm or constriction must be demonstrable before it can be assumed that lasting improvement in blood supply will follow sympathectomy. To differentiate between vascular spasm and occlusion is obviously essential in diagnosis and prognosis. Accordingly the writer gives a detailed account of all pre-operative methods for determining this point.

The extraordinary impetus given to the treatment of various ailments by sympathetic denervation by the pioneer work of Royle and Hunter is more than sufficient call for the publication of a work of this description, which includes an extensive bibliography.

Notes on Books, Current Journals and New Appliances.

THE MEDICAL PRESS AND CIRCULAR.

THE August 7, 1935, issue of *The Medical Press and Circular* has an editorial article on Australasian medicine. It has been written in connexion with the one hundred and third annual meeting of the British Medical Association, held in Melbourne last September, and the annual meeting of the Royal Australasian College of Surgeons, held in March, 1935. In the body of the journal appear four articles by Australian authors. Sir Henry Newland contributes an article on plastic surgery of the face; Professor H. R. Dew writes on hydatid disease; Dr. H. B. Devine deals with malignant disease of the colon, and Dr. E. J. T. Thompson writes on the pyrexial treatment of mental and nervous disorders. The gesture of the editor of *The Medical Press and Circular* in publishing articles by Australian authors synchronously with the Melbourne meeting is one that will be appreciated by Australian members of the British Medical Association.

¹"The Clinical Aspects of Visceral Neurology, with Special Reference to the Surgery of the Sympathetic Nervous System" by W. K. Livingston, M.D.; 1935. London: Baillière, Tindall and Cox. Super royal 8vo., pp. 265, with illustrations. Price: 22s. 6d. net.

The Medical Journal of Australia

SATURDAY, NOVEMBER 9, 1935.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

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THE HUMAN TEST TUBE.

WHEN successive editions of the British Pharmacopœia are studied it is notable how some of the older galenical preparations disappear altogether, while others are displaced by more purified active principles. This is part of the process of proving all things by exact measurement, when they can so be proved. It is, of course, obvious that the practice of therapeutics cannot ever be a matter of pure mathematics. We may, for example, know precisely the composition and mode of action of some medicinal preparation, we may measure the dose exactly and adjust it with nicety to the body weight or other physical standard of the patient, but we still must reckon with the variable factors of rate and degree of absorption and of that still more nebulous factor, idiosyncrasy. But even the recognition of our limitations in attempting to practise medicine as an exact science should make us all the more keen to reduce the number of our variable factors. The old jibe which supposes doctors to pour "drugs of which they know little into a body of which they know less" becomes daily more pointless as standardization of medicinal substances daily becomes more accurate.

Liver treatment is without doubt one of the greatest of modern medical advances, but it has suffered from two drawbacks, one that it has been and still is sometimes employed in inappropriate conditions, the other that as yet its standardization for human use is uncertain. George R. Minot and W. B. Castle have recently made a further contribution to this subject on which we are already so deeply their debtors.¹ They describe the well known reticulocyte reaction of the red blood cells and elaborate a method by which the hæmopoietic value of a preparation of liver or stomach tissue may be estimated. They point out that the reticulocyte is not a degenerating form of red cell but a stage in its development intermediate between the nucleated cell and the adult erythrocyte. Its fluctuations are governed by variations in blood formation, and in the special case of pernicious anæmia, which is here under consideration, these fluctuations are a most valuable indicator of the degree of blood regeneration produced by treatment. Minot and Castle remark, however, that the doctor is so humanely anxious to "get the patient well" that the sternly imposed criteria of the scientist are sometimes forgotten: we must not only get him well but we must find out the quickest and best way. They point out that more than one deficiency may exist, not only the specific hæmopoietic factor may be lacking, but also iron; that other methods are often used, such as blood transfusion; and that patients vary in their degrees of response, according to their age and the vigour of their bone marrow; these all introduce variations that make it difficult to assess the value of the particular preparation used in any individual case. Further, the use of supramaximal dosage may conceal the lack of potency in an extract. In order to supply the want of a method of standardization applicable to the human subject they have devised what they call the test of the "double reticulocyte response". If during a period of ten to fourteen days an active material be continuously administered in submaximal dosage to a patient under standard conditions, it is found that a moderate but not maximal reticulocyte response occurs and then gradually recedes; if now a larger quantity be given, a second response takes

¹ Supplement to *The Lancet*, August 10, 1935.

place. Thus if two different extracts are used in this test in apparently equal dosage the occurrence of the double response will indicate that the second is the more potent of the two extracts. Exact details of the technique cannot be given here; it is sufficient to indicate that with due care the hæmopoietic potency of liver and stomach preparations can be compared.

There are many points of interest in Minot and Castle's paper concerning both diagnosis and prognosis of nutritional anæmias, but here we wish especially to lay stress on this question of potency of extracts. It is not enough to have the assurance of a manufacturer that a substance "represents" so much liver; it should be described in terms of the residual amount of the active principle. Until this is practicable or until some system of unitage is devised and brought into effect, the practitioner will be wise to use only those preparations which experience has proved potent, and what is more important, potent in doses not unduly massive, and therefore not unduly expensive. The more critical we are of therapeutic methods and the more carefully we control them, the more help we can give where it is needed most.

Current Comment.

THIOCRESOL AND THIOGLYCEROL.

F. S. HAMMETT AND S. P. REIMANN, experimenting on plants, mice, rats and man, concluded that sulphur in the form of the sulphydryl group is necessary for cell production. In 1930 Reimann reported relatively rapid healing of ulcers by thiocresol, which stimulates mitosis. Thiocresol (*p*-thiocresol) is a sulphydryl group attached to cresol. It is insoluble in water, but can be used dissolved in 95% alcohol and water added to make a 1 in 10,000 solution. Reimann showed that animal skin could be thickened and the thickness of skin grafts increased by thiocresol (0.25%) in lanolin. Chronic ulcers were successfully treated, but granulations grew faster than epithelium. Exuberant granulations were checked by silver nitrate and *débris* dissolved by pepsin. Epithelial growth was definitely stimulated. J. R. Birnbaum reported good results from thiocresol on denuded surfaces and on skin grafts. L. A. Brunsting and G. Simonsen confirmed the stimulating properties of the sulphydryl groups and found that aqueous solution of cysteine stimulated epithelium and granulation tissue and apparently inhibited bac-

terial growth. But all sulphydryl groups thus far employed were very unstable, and a more stable compound was searched for.

Thioglycerol was produced by Gelormini in 1931 by treating glycerol α -chlorhydrine with potassium hydrosulphide in alcoholic solution under pressure. Thioglycerol deteriorates less than 10% per month at room temperature, but liberates sulphydryl more rapidly at body temperature. It has an odour of hydrogen sulphide and physical properties like those of glycerin.

L. E. Sutton records observations based on animal experiments and 264 clinical cases treated with thioglycerol, which he considers better than other sulphydryl compounds for stimulating wound healing.¹ The animals used were white rats from which some abdominal skin was removed. It was found that such wounds treated with thiocresol healed 18% faster than those of controls. Glycerin has a dehydrating action, and it was thought that it might retard exuberant growth of granulations. It was found that in wounds thus treated granulations remained relatively level. With saline solutions granulations grew rapidly. Thioglycerol in pure glycerin, in the optimum solution of 1 in 5,000, effected healing 21% faster than did glycerin alone. The clinical cases included a variety of wounds, ulcers and burns. The solution used was 1 in 5,000 of pure glycerin, or in a smaller percentage of glycerin. Ambulatory cases mostly had thioglycerol in mucilage of tragacanth. Lanolin with 0.25% thioglycerol was used to thicken the epithelium of recently healed ulcers and large thin grafts. Healing was deemed satisfactory when failure under ordinary treatment was followed by relatively rapid healing under thioglycerol. Many of the cases needed preliminary measures to improve drainage or remove necrotic tissue. Skin irritation was present in only 1.9% of the cases. Healing was satisfactory in 89% and not satisfactory in 11% (30 cases). Of these, two were sensitive and treatment was discontinued. In twenty healing ceased or progressed very slowly as the wound area diminished. In eight ambulatory cases there was obvious lack of cooperation on the part of the patient. The satisfactory cases gave evidence of epithelial advance within forty-eight hours. Thioglycerol in glycerin or water-soluble jelly has been used to stimulate healing of extensive deep burns with islets of epithelium after separation of necrotic tissue. This has succeeded when tannic acid failed. In one case two sisters were burned in the same fire. The one treated by thioglycerol showed marked superiority over the other, who had extensive grafting but no thioglycerol. Chemical and electrical burns were also treated. It is notorious that deep burns involving the arm, chest and axilla often result in contracture with loss of function; but a case is here reported and illustrated in which a soft scar resulted without tension and with no loss of function. The percentage of glycerin used varied according to the character of the granulating surfaces. Pure

¹The Journal of the American Medical Association, June 15, 1935.

glycerin was employed when granulations were redundant or pale, 70% when the granulations were level with the epithelial edge, and an aqueous solution when they were below the skin level. There are, however, some contraindications. Sulphydryl compounds should not be used when malignant disease is suspected. When sensitivity or skin irritation occurs, thioglycerol should be stopped. Prolonged application to skin grafts may cause excessive thickening of the grafts and contracture in the grafted areas. Sutton correctly observes that there are many factors in the healing process which vary in different individuals or in the same individual at different times. Correction of conditions retarding repair must take precedence over the use of measures to stimulate healing.

The quest for an ideal application to heal wounds is never-ending. Finality probably will never be reached. Sutton makes out a good case for thioglycerol, but only time, with a vast amount of experience, will show the truth. Other preparations extolled as ideal have ultimately proved disappointing.

FULMINATING HÆMORRHAGIC ENCEPHALITIS.

It is known that fulminating cases of epidemic (lethargic) encephalitis may have a fatal issue within a week or even a few days. Death in the acute stage is especially likely to occur when the bulb is implicated. A. Levinson and O. Saphir have recorded five cases with exceptionally rapid death.¹ A child of four months, while out with his nurse, showed marked dyspnoea as if he had inhaled a foreign body. He was hurried home; he became cyanotic and rapidly died. The exact duration of the illness is not stated, but death was almost sudden. The autopsy revealed very early acute hæmorrhagic encephalitis, with acute catarrhal bronchitis and bilateral bronchopneumonia. There were three accessory spleens, the thymus was enlarged and there was generalized lymphoid hyperplasia. Levinson and Saphir consider that the infant may have belonged to the *status thymolymphaticus* group, thus explaining the lowered resistance. They hold that the bronchitis and bronchopneumonia were portals of entry of the aetiological factor. A child of twenty-nine months died several hours after the onset of symptoms. The autopsy again showed acute hæmorrhagic encephalitis, hæmorrhagic bronchopneumonia, fatty changes in the liver, cloudy swelling of the kidneys, minute hæmorrhages in the thymus and prominent follicles in the spleen. Diplococci were found in the lungs. A child of nine months died twelve hours after the onset of sudden convulsions; acute encephalitis was found *post mortem*. There was bilateral bronchopneumonia. The lymph nodes throughout the body and the solitary follicles and Peyer's patches in the gastrointestinal tract were large and hyperæmic. Petechial hæmorrhages were scattered over various areas. A girl, aged four and a half years, just recovered from pertussis, died forty-eight hours after the onset of

symptoms from respiratory paralysis. The necropsy, confined to the brain, revealed more implication of the brain than of the meninges, the meningitis observed being probably secondary. The last case was that of a medical practitioner, aged thirty-seven years, who died twenty hours after the onset of symptoms. The autopsy showed an acute encephalitis superimposed on an old one. He had bilateral hæmorrhagic bronchopneumonia, aortic and coronary arteriosclerosis, slight myocardial fibrosis and healed mitral endocarditis. All five cases were fulminating, and in all death was unexpected. All might be classified as sudden or rapid death from natural causes; they are of particular forensic interest. The suggestion by Levinson and Saphir that this form of encephalitis might be termed "pernicious" is not particularly apt, as surely all cases of encephalitis are pernicious. Levinson and Saphir say that, in spite of bronchopneumonia in four and pertussis in one, death in all was due to encephalitis. But surely the other lesions were contributing, if not exciting, causes of the fatal issue. Possibly also in the last case the arterial and cardiac lesions may have helped to determine the death. The outstanding symptoms in all cases were respiratory difficulty—dyspnoea, stertorous breathing or Cheyne-Stokes respiration. In the first case the presence of a foreign body in the trachea was suspected. In all cyanosis was evident. Again bronchopneumonia obtrudes itself on one's mind. It is suggested that the causative organisms of the encephalitis (if such there be) gained entrance through the respiratory tract. The patient with an acute on top of an old encephalitis had suffered from "influenza" years previously, since when his facies had altered and had become mask-like. In this patient Gram-positive diplococci were found in the brain. Some observers consider that a diplostreptococcus is the causative agent of lethargic encephalitis. In the case here recorded there was no evidence that the organisms had caused the disease, as they were found mainly in the blood vessels. H. Zinsser in 1928 considered that logic forced one to reject the bacterial causation of the disease.

In one case the thymus was enlarged and in three there was hyperplasia of the lymphadenoid structures. Could these children be deemed to be in the *status thymolymphaticus*? Could that condition (albeit now discredited) have determined or contributed to the deaths? Levinson and Saphir believe that in some cases the assumption of a *status thymolymphaticus* is still justified. In the first two cases the duration of the disease was so short that they could not believe that the acute inflammation of the encephalitis had caused the general lymphoid hyperplasia. In the third case inflammatory changes were marked and might explain the lymphadenoid hyperplasia. Levinson and Saphir insist that in some of their cases the rapid or sudden death could not be explained by a *status thymolymphaticus*, but must be ascribed solely to the encephalitis—again ignoring the bronchopneumonia and other lesions.

¹ The American Journal of the Medical Sciences, July, 1935.

Abstracts from Current Medical Literature.

SURGERY.

Disorders of the Thyroid.

F. H. LAHEY (*The Western Journal of Surgery, Obstetrics and Gynecology*, July, 1935) discusses several important features of the diagnosis and treatment of thyroid conditions, using the experience gained from over 13,500 operations on the thyroid. The impedance angle test was disappointing in the 250 cases in which it was tried, failing particularly in borderline cases, where it should have been of most help. In this series no support is given to the statement that hyperchlorhydria is often associated with hyperthyroidism; in fact, the investigations rather suggested the contrary. Believing that patients with thyroid crises suffer from hypercombustion rather than from toxæmia and that they die a liver death, the author employs a continuous intravenous infusion of glucose and saline solution in the treatment of this condition. By this means the effects of hypercombustion are combated and the patient is prepared for operation. These patients will accept up to 5,000 cubic centimetres of normal saline solution and 500 grammes of glucose in twenty-four hours. To this may be added up to 50 minims of Lugol's iodine solution each day without danger. It is felt that some operative procedure should be employed within three or four weeks after getting these patients out of crises, because, if the patients are sent home without being operated upon, the disease is still unchecked and the patient may go back into a crisis from which he cannot be extricated a second time. A number of patients were admitted in delirium, with vomiting and diarrhoea, and were treated with intravenous saline and glucose infusions with good results, so that their metabolic balance was restored and they could be put on a high carbohydrate diet and operated upon successfully in three or four weeks' time. When diabetes complicates the hyperthyroidism, the operative mortality is slightly raised; the percentage of patients operated upon in two stages is approximately 50. The relief of the hyperthyroidism in these cases will make the diabetes more tractable, but will not accomplish a cure of the diabetes. These remarks are applied to true diabetes and not the glycosuria frequently associated with hyperthyroidism. Speaking of the treatment of cardiac conditions by thyroidectomy, the author explains that subtotal thyroidectomy for cardiac decompensation and hyperthyroidism is quite a different and more satisfactory operation than total thyroidectomy for cardiac decompensation. In the former condition, a patient

whose heart fails because of hyperthyroidism must of necessity have a considerable reserve, otherwise death would result; in the latter condition the results are disappointing because of the lack of cardiac reserve. Total thyroidectomy gives the best results in those cases with angina, and the poorest results in those with congestive failure. Exophthalmos disappears after operation in nearly 75% of cases, but may persist in an extreme degree in some cases. These patients are in danger of blindness, and it may be advisable to suture the lids or, in the most marked cases, to provide relief by partial removal of the orbital roof. In patients with hyperthyroidism the blood cholesterol content is quite consistently below normal figures, while in hypothyroidism it is above the normal. It is considered that this test is a more valuable guide to the degree of hypothyroidism than is the basal metabolic rate. The clinical value of the blood cholesterol determination in hyperthyroidism is considerably less than in hypothyroidism, the fall in blood cholesterol not varying definitely with the degree of change; but it may be accepted that in hyperthyroidism patients with a low blood cholesterol content are suffering from a severe and dangerous degree of intoxication.

Trigeminal Neuralgia.

From a study of personal experiences with 468 cases of trigeminal neuralgia, G. Horrax and J. L. Poppen (*Surgery, Gynecology and Obstetrics*, September, 1935) record a synopsis of the results obtained and the procedure followed at the Lahey Clinic and the Peter Bent Brigham Hospital. In the introductory remarks on the differential diagnosis, etiology and symptomatology, stress is laid on the importance of careful and thorough examination and investigation before proceeding to remedial measures. No single procedure is advocated; but the authors describe their method of dealing with these patients. The treatment is either conservative or radical, the conservative consisting in non-operative and minor operative procedures, the radical in root avulsion. Those who suffer only mild attacks and present no difficulties in diagnosis are treated with inhalations of trichlorethylene, adequate relief being experienced by nearly one-half of the number of patients so treated. In more severe cases and in cases where no relief follows the use of trichlorethylene, alcohol injection of the peripheral nerve trunk is practised. Temporary relief usually follows this procedure, the technique of which is described in detail. Injection of the ganglion is not advised, and avulsion of the peripheral nerves is advocated only in the case of the branches of the ophthalmic division. Before subjecting a patient to sensory root avulsion, at least one alcohol injection is performed in order to acquaint the patient with the numb-

ness and paræsthesia which must follow avulsion, as some patients mind such symptoms more than the original pain. Such a preliminary injection also helps to insure that the condition is really one of trigeminal neuralgia, since it is well known that sensory root avulsion will not relieve the atypical facial pains that simulate *tic douloureux*. The operation of sensory root avulsion is done by the temporal route and carries a mortality rate of 1% in trained hands. A table is appended to the paper, showing the average period of relief obtained from alcohol injections.

Skin Disinfection.

J. A. VAICHULIS AND L. ARNOLD (*Surgery, Gynecology and Obstetrics*, September, 1935) give the details of a compound coloured alcoholic solution of mercuric chloride for skin disinfection prior to operation. Controlled experiments were used, and the final formula is based on a study of the correlation of the data obtained and of the properties required. It is stated that this solution has a high phenol coefficient, that it will penetrate the skin, that it will remove fat from the skin, that it does not irritate, that it will cover the operative field and yet lose the colour within twenty-four hours, and finally that it is not expensive. Favourable reports have followed its use in nearly 500 cases, including 300 cases of injury due to violence and 65 abdominal cases. The formula suggested for use is: ethyl alcohol (95%), 600 cubic centimetres; acetone, 200 cubic centimetres; mercuric chloride, 1.0 gramme; concentrated hydrochloric acid, 10 cubic centimetres; chrysoidin Y, 2.0 grammes, and water to make one litre.

Cervical Ribs.

SAMUEL ROBINSON, C. S. STONE AND A. H. ELLIOTT (*The Western Journal of Surgery, Obstetrics and Gynecology*, June, 1935) outline the clinical history of patients who have suffered from cervical ribs, and report certain cases that have come under their own care. Cervical ribs were described by the anatomists two hundred years ago; but one hundred years elapsed before clinicians ascribed to them certain discomforts and disabilities in the upper extremities. Up till 1905 only forty-two operations for the removal of cervical ribs had been reported in the medical literature. There is great anatomical variation in the structure of these ribs. The presence of a cervical rib is often associated with other congenital malformations. In most instances the ribs arise from the seventh cervical vertebra. Only on three occasions have more than one been found on the same side. J. B. Murphy was emphatic that in patients having bilateral cervical ribs only 30% exhibited bilateral symptoms. All authors agree that symptoms are more common in women than in men.

Symptoms develop at any age, though most frequently during the third decade. The widely varying symptomatology results from interference with the subclavian blood vessels, from pressure on a nerve plexus, or from vasomotor instability. Frequently the clinical picture is clouded by the appearance of more than one set of symptoms. Numbness and tingling are frequently the first complaint of the patient. Pain and loss of tactile sensation frequently follow. The authors report a case which was studied on account of the deformity of the hands. There was extensive atrophy of hand and arm muscles. There was subluxation of all finger joints. X ray examination of the hands revealed no arthritis. The authors consider the deformities to be the result of long-continued pressure on the brachial plexus. In another patient, who had complained of cold, blue hands since childhood, associated with pain and numbness, removal of cervical ribs relieved the pain but left the vasomotor disturbance unaffected. The indications for operation include the presence of interference with blood flow through the subclavian artery and interference with the brachial plexus. Operation is never called for in the absence of symptoms. In some instances, when the subclavian artery or a trunk of the plexus is compressed between the anterior end of a rib and the lateral border of the *scalenus anterior* muscle, section of the muscle itself is preferable to the removal of the offending rib.

Tumour of the Neuromyo-Arterial Glomus.

VICTOR RAISMAN AND LEO MAYER (*Archives of Surgery*, June, 1935) report three cases of tumour of the neuromyo-arterial glomus, stating that these are the first cases to be reported in American literature. As a clinical entity the disease was described by William Wood (*The Edinburgh Medical Journal*, 1812). Following the clinical and pathological investigations of Masson, the condition has recently received great attention. The first patient, a female, aged twenty-eight years, complained of pain at the finger tip. A small bluish nodule was visible under the nail. The pain was increased by exposure to cold and radiated widely. X ray examination revealed no abnormality. The diagnosis was thought to be between a papilloma and a chronic low grade infection. Portion of the nail was removed and the tumour was curetted away. Microscopically the tumour consisted of epithelioid cells with large vesicular nuclei. From the numerous vascular spaces lined with flattened cells some neural elements were visible scattered through the tumour. The authors found two other cases within a very short time; but the clinical condition was essentially the same.

This particular type of tumour was fully described by Masson, of Strasbourg, in 1924. Masson concluded that the tumours were benign outgrowths of an organ previously described as the "organ of Ruffini", which was thought to act as a regulator of the blood supply of the capillaries and arterioles of the skin. Following the authors' reports is a synopsis of twenty-six cases reported in foreign literature up to 1933. Reference is made to Wood's clinical description of "painful subcutaneous tubercles", which varied widely in situation. All were associated with radiating pain, and all symptoms were eliminated by removal of the tumour. Then follow some clinical histories of thirty-three patients who had suffered from this condition. In the authors' opinion a positive diagnosis can be made only by microscopic section. If the tumour is not situated in relation to the nail, all tumours associated with the skin and subcutaneous tissues must be considered in making a diagnosis. The tumour itself is small as a rule, does not exceed 1.25 centimetres (half an inch) in diameter, and is of slow growth. It may be situated in any part of the body. It is always sensitive to pressure. No metastases or recurrences have been reported after removal. Excision is invariably followed by cessation of symptoms.

Acute Pancreatitis.

FRANCIS F. HENDERSON AND E. S. A. KING (*Archives of Surgery*, June, 1935) state that acute pancreatitis is an emergency condition in the knowledge of which there has been no improvement over a large number of years, despite the amount of study given to it. A study of the literature shows that it has a mortality rate between 40% and 80%. The authors base this paper on a study of sixty patients operated on in Boston City Hospital. Much attention has been paid to pancreatic infection by the lymphatic route, based on the anastomosis and relation of the lymphatics between the gall-bladder and the pancreas. Pancreatic infection through the bile ducts has been considered important. It has also been suggested that duodenal contents may be forced or aspirated into the pancreatic ducts. Pancreatic infection by way of the blood stream is a possibility. Pancreatic infection by direct contiguity has been discussed. The incidence is highest in the three decades of 30 to 40, 40 to 50, and 50 to 60; the disease predominates in the female sex, probably because of the frequency with which women are affected with disease of the gall-bladder. The pain occurs chiefly in the epigastrium and is intense and stabbing. It is not relieved by morphine to the same extent as biliary and renal colic. The onset of pain in every case in the series investigated by the authors was sudden. Twenty-three patients gave a history of previous attacks. Nausea

and vomiting occurred in all cases; 30% of the patients gave a history of constipation. All patients were well nourished. The pulse varied from 100 to 120 in rate and was of fair quality. The temperature varied between 35.5° and 39.7° C. (96° and 103.5° F.), the average temperature being 37.3° C. (99.2° F.). Five patients had cyanosis. Abdominal breathing was limited in practically all cases and absent in many. There was a characteristic soft distension below the umbilicus, with an increasing mild spasm and rigidity (by no means board-like) above the umbilicus. At operation, in half the cases there was free fluid in the peritoneal cavity, varying from sero-sanguineous to dark brown in appearance. Fatty necrosis was a common finding. The most suitable anæsthetic was nitrous oxide and ether, and the mortality rate was lowest among patients operated on from the second to the sixth day. The authors state that results seem to show that acute pancreatitis does not present as much of a surgical emergency as had been previously thought. The authors' plan in future is to be conservative in the treatment of acute pancreatitis and to delay operation to some time between the second and sixth day, choosing the time when the patient's condition appears to have reached a maximum degree of recovery from the initial toxæmia.

The Pigmented Mole.

H. GLENN BELL (*The Western Journal of Surgery, Obstetrics and Gynecology*, June, 1935) reports the history of a patient who suffered from malignant melanoma. Repeated applications of an electric needle to a pigmented mole appeared to stimulate the spread of this tumour. In the author's opinion, spread was by way of the lymphatics. Immediately the spread was noticed, deep X ray therapy was applied to the entire arm and axilla; but two months later recurrence was noted in the upper arm. In removing these pigmented moles care should be exercised that a wide margin of skin and all the underlying fascia are removed at the one operation. It is always difficult to recognize early signs of extension in a mole of long standing, and, apart from an increasing size, activity may be indicated by itching, weeping, increase in vascularity, or pigmentation. Of twenty-five patients treated for malignant melanoma in the University of California Hospital in the past seventeen years, nineteen have died from generalized metastases. Only one has been traced and has no evidence of recurrence at present. The author emphasizes that malignant melanomata arise in congenital pigmented moles or birthmarks that have been subjected to irritation. If any attempt at removal is undertaken, it should be done deliberately and all chemical or electrical irritation eschewed.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE SOUTH AUSTRALIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Anatomy Theatre, the University of Adelaide, on July 25, 1935, Dr. D. R. W. COWAN, the President, in the chair.

Acute Nephritis in Children.

Dr. M. T. COCKBURN read a paper entitled: "Some Aspects of Acute Nephritis in Children" (see page 643).

Dr. R. L. THOROLD GRANT expressed his appreciation of Dr. Cockburn's paper. He pointed out that use had been made of Dr. Cockburn's work in the discussion on acute nephritis in children at the Fourth Session of the Australasian Medical Congress at Hobart. The paper emphasized the serious import of acute tonsillitis, which might so frequently be followed by an attack of acute nephritis or by carditis or by both, as a recent case of Dr. Grant's demonstrated. Dr. Grant quoted the case of a little girl who had developed acute nephritis about a week after an attack of acute tonsillitis. She was treated in hospital, and after about two more weeks she developed carditis, just as in a rheumatic infection.

It had been considered that carditis or nephritis following acute tonsillitis might be due to the setting up of an allergic state, and it was thought that the administration of aspirin during and following an attack of acute tonsillitis might do something to prevent the development of this allergic state.

Dr. Cockburn had drawn attention to the infrequency of nephritis following acute tonsillitis in hospital patients who were at rest in bed and under medical supervision. The moral of this was surely that all cases of acute tonsillitis seen in private practice should be regarded seriously, with the idea of preventing the possible complications. Dr. Cockburn's paper also demonstrated that the familiar *impetigo contagiosa* was not such a simple disease as people had been accustomed to think. There was no doubt that an attack of impetigo made a child ill; Dr. Grant had seen many instances of this. Dr. Cockburn had shown that acute nephritis might be a sequel to the attack. Yet this impetigo was such a common complaint that the percentage of cases followed by renal involvement must be very small, and it was scarcely practicable to regard each case of impetigo as one would a case of acute tonsillitis.

Another point of interest was the infrequency with which pneumonia was followed by nephritis. Dr. Grant had seen many cases of pneumonia in children, and he could not recall any one of them that had been followed by renal involvement. He had at present under his care a child with acute nephritis following tonsillectomy. It had been his practice to subject children convalescent from an attack of acute nephritis to tonsillectomy should tonsillar sepsis be present, and also to regard tonsillectomy as a means of hastening the disappearance of red blood cells from the urine when convalescence was tardy. It appeared that these ideas must be subjected to revision in the light of what Dr. Cockburn had said. Dr. Grant asked how long did Dr. Cockburn consider that a child convalescent from acute nephritis and yet with red blood cells in the urine should be kept in bed. Would he not keep the child in bed until red cells were absent from the urine? Did he know of any way of hastening the disappearance of red cells from the urine, and did their long-continued presence always suggest the subsequent development of chronic nephritis?

Dr. A. S. COCKS congratulated Dr. Cockburn on his very interesting paper. His work revealed some noteworthy facts. With regard to the graphs displaying the relationship between atmospheric temperature and the incidence

of acute nephritis, he said that, whereas he practised in one of the coldest and wettest parts of the State, he found that acute nephritis was very uncommon there. He thought possibly the explanation lay in the fact that change in temperature rather than the actual lowness of temperature predisposed to the infections which one was accustomed to look on as the precursors of acute nephritis. Dr. Cockburn quoted Bingham as advocating the examination of the urine of patients suffering from acute tonsillitis amongst other diseases. Dr. Cocks was astonished at the large proportion of children and young adults who had albuminuria when suffering from acute tonsillitis; the albuminuria often persisted after the temperature had fallen, but disappeared with rest in bed. He had never seen one of these patients get acute nephritis. This formed a parallel with the patients who contracted tonsillitis in hospital observed by Dr. Cockburn. It was reasonable to suppose, however, that these were the patients who, if allowed up too early, would place the kidney at a greater disadvantage in regard to the toxin and so develop acute nephritis after an interval. He agreed with Dr. Grant that acute tonsillitis should be treated as a serious disease.

Dr. DOUGLAS G. MCKAY also congratulated Dr. Cockburn on his excellent paper. In the type of acute nephritis discussed in the paper he was struck by the comparative rapidity with which casts disappeared from the urine. It was usually not until many weeks after this that red cells finally disappeared from the specimen examined microscopically. He thought it might be that the really acute process was over with the disappearance of casts, and that the persistence of the red cells was due to damage to the filtration system, which allowed of the escape of the red cells. Eventually fibrosis took place in these faulty filters and the leakage discontinued. In view of this possibility it would be reasonable to allow the convalescent nephritic more liberty as soon as the casts disappeared from the urine and his general condition was satisfactory.

A MEETING OF THE TASMANIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Tasmanian Museum on August 13, 1935, Dr. J. STODDARD BARR, the Vice-President, in the chair.

Oro-Pharyngitis.

Dr. B. HILLER read a paper entitled: "A Membranous Oro-Pharyngitis" (see page 649).

Dr. TERENCE BUTLER spoke of his great interest in Dr. Hiller's paper. He had been associated with Dr. Hiller in several of the cases quoted. One of these cases was febrile at the commencement. In Dr. Butler's practice he had seen this illness only in the last three years. In addition to those mentioned in Dr. Hiller's paper, he had of late treated another three patients. The tendency to relapse had been very marked, but all patients had reacted to the treatment outlined by Dr. Hiller. He spoke of a nurse who, in a mainland hospital, had evidently had a similar infection, which had invaded the antra and the intestinal tract and had affected the endocardium.

Dr. E. BRETtingham MOORE asked whether an autogenous vaccine had been tried in these cases.

Dr. COUNSELL inquired whether a blood count had been done, as the condition might be associated with blood changes.

Dr. W. L. CROWTHER congratulated Dr. Hiller and said that he thought the paper was of the first importance to the general practitioner, particularly as the treatment appeared to him to be almost specific.

Dr. J. STODDARD BARR, in thanking Dr. Hiller for his paper, stated that he had seen a series of cases in his practice different from those quoted, but presenting somewhat similar features. In these, a pale membrane appeared in the bed from which the tonsil had been

enucleated. The infection was very persistent and possibly streptococcal in origin. All responded eventually to a 1% solution of acriflavine, used twice daily. In his opinion, Dr. Hiller's cases and his own were due to dust-borne infection.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at Saint Vincent's Hospital, Sydney, on September 19, 1935. The meeting took the form of a series of clinical, pathological and radiological demonstrations by members of the honorary staff.

Hour-Glass Stomach.

Dr. W. T. D. MAXWELL showed a woman, aged fifty-two years, who had been admitted on January 13, 1935. She had had pain after meals and had been treated for gastric ulcer for twenty years. In this time she had had three large hæmatemeses and several smaller ones. At operation four years before admission hour-glass stomach was found and the ulcer appeared to be healed; an anastomosis was made between the proximal and distal pouches. Owing to a return of symptoms and a recurrence of the ulcer's activity, as revealed by X ray examination, laparotomy was performed two years before admission on this occasion. A tremendous "letter-box" ulcer was present, infiltrating the pancreas deeply. The pancreas was red and injected, and several times its normal proportions. Jejunostomy was carried out and the patient thenceforth fed exclusively by this route. Water only, and in small amounts, was allowed by mouth. It was two years before X ray examination demonstrated the ulcer to be reasonably healed. On January 14, 1935, gastrectomy to a point above the constriction was performed and the anastomosis made after the Pólya fashion (right to left). Dr. Maxwell said that the patient had since been very well, but had had some discomfort after meals, due no doubt to some food entering the proximal loop. For this reason Dr. Maxwell said that he now performed the anastomosis after the Finsterer method.

Prostatic Hypertrophy.

Dr. Maxwell also showed pathological specimens from a male, aged sixty-one years, who had been admitted on September 30, 1934. He had had difficulty in micturition, and straining and frequency for two months. On September 28, 1934, he had had retention of urine necessitating catheterization. Examination revealed the whole prostate to be moderately enlarged; the right lobe was somewhat flattened and stony hard. Cystoscopy revealed no abnormality beyond prostatic projection (slight), and posterior urethroscopy by Dr. Walter Perry showed bullous oedema and contracted floor of the prostatic urethra suggestive of malignancy. On October 16, 1934, the prostate, with attached bladder floor and seminal vesicles, was removed by Young's method, with perineal approach. Convalescence was complicated by a rectal fistula. Healing was followed by perfect urinary control (*sphincter urethrae membranacea*). The patient was discharged well on December 2, 1934. He remained perfectly well till three months later, when he contracted a fatal pneumonia. Biopsy showed that the cystic adenomata had broken down in places where the changes suggested early malignancy.

Abnormal Renal Artery.

Dr. Maxwell also showed a female patient, aged twenty-six years, whose renal tracts had been investigated because of persistent right renal pain over a period of eighteen months. The pyelogram on the right side showed calyces of normal outline, but directed medially from the pelvic shadow instead of laterally. From this it was evident that the kidney was abnormally rotated. The abnormal attachment of an accessory renal artery was suggested by Dr. Maxwell at a clinical meeting at Saint Vincent's Hospital in 1934. At operation it was found that the lower one-third of the kidney was almost completely separated from the remainder by an abnormal vessel which

passed behind the kidney, then round the convexity and across the anterior surface, to be attached normally at the lower end of the renal pelvis. The kidney was rotated on its long axis, so that the pelvis was directed forward, the whole organ at first sight having a normal flattened appearance; but the flattening was shown to be from the pelvis to the convexity instead of antero-posteriorly. On division of the abnormal artery the lower half of the kidney assumed a dusky blue colour; but no subsequent hæmaturia occurred. The kidney was fixed in its normal attitude by nephropexy. The patient lost all symptoms after the operation, and a urogram showed the calyces to be directed outward.

Carcinoma of a Bronchus.

Dr. V. M. COPPLESON showed a man, aged fifty-eight years, who had complained of pain in the left side of the chest, increasing in severity, for two and a half years. He had had dyspnoea on exertion and a cough with sputum. There had been one hæmoptysis.

Physical examination revealed signs of consolidation on the left side of the chest. X ray examination after injection of lipiodol showed a complete atelectasis of the left lung, due to an irregular block of the left main bronchus, which was almost certainly due to an endobronchial carcinoma.

An exploratory thoracotomy was performed through the seventh left intercostal space. The left lung was found to be atelectatic and the pleural cavity filled with filmy adhesions. A hard mass could be felt in the region of the hilum of the lung, extending into the mediastinum, which was hard and solid.

Tumour of the Larynx.

Dr. Coppleson's next patient was a man, aged fifty-one years, who had been admitted seriously ill, complaining of intermittent dryness of the throat for two and a half years and huskiness of the voice for three months. He had lost a considerable amount of weight and had a severe dyspnoea. He had had a severe cough with thick purulent sputum for six weeks. On admission to hospital he was very dyspnoeic and could not lie down in bed. His breath was very offensive. Laryngoscopy showed that the larynx was almost completely occluded by a growth involving the aryepiglottic fold and arytenoid cartilage. On January 25, 1934, a low tracheotomy was performed under local anaesthesia. Following this the patient made rapid progress until March 1, 1934, when a total laryngectomy was performed under local anaesthesia. Some large glands were removed at the left side of the neck at the same time. The wound healed well, except for a very small oesophageal fistula, which was closed under local anaesthesia on October 15, 1934. The patient increased 37.8 kilograms (six stone) in weight following the laryngectomy. An artificial larynx, made by the Bell Telephone Company, was obtained from the United States of America. This consisted of a rubber pad which fitted over the tracheal opening and led to a rubber tube, to which was fitted a small attachment containing a vibrating reed, which the patient held in his hand. From this passed a small tube which was placed in the mouth. The instrument was held firmly against the tracheal opening, and, by blowing through this and covering a small opening with the right finger, the patient made the reed vibrate; the end of the tube was placed in the mouth, the patient thus being able to speak, the reed supplying the vowel sound, the lips and tongue being used for the consonants.

This patient was in good health, was able to converse slowly, but quite distinctly, and could carry on a conversation by telephone.

Tic Douloureux.

Dr. Coppleson's next patient was a woman, aged seventy-two years, who, at the time of her admission to hospital, had had pain in the left side of her face for twelve months during the day, recurring about six times a day, coming on suddenly and lasting a few minutes each time. Nothing of importance was elicited on examination. An operation

was performed through the left temporal region by a vertical incision, and the posterior root of the fifth nerve was exposed. The root was divided in its lower two-thirds; the motor root was left intact. The patient made an uninterrupted recovery, leaving hospital in about fourteen days. Since the operation, several months before the meeting, she had had no return of the pain. The numbness present was confined to the second and third divisions of the fifth nerve.

Dr. Coppleson also showed a man, aged fifty-four years, who had been referred by Dr. R. Jeremy and admitted to hospital complaining of severe pain in the right side of the face for eighteen months. The pain extended from the eye to a little below the angle of the mouth. The pain commenced as an intermittent neuralgia which became almost constant and of such a serious character that the patient had contemplated suicide. He was unable to touch the side of his face; he ate with difficulty, and even talking and reading brought on paroxysms. A resection of the lower two-thirds of the posterior root of the right trigeminal nerve was performed. The motor root was not saved in this case. On the patient's recovering from the anaesthesia, all pain had disappeared and no pain had been felt in the face since the operation about six months before the meeting. Corneal sensation was present and numbness was limited to the area innervated by the lower two divisions of the fifth nerve.

Dr. W. T. D. MAXWELL showed a male patient, aged sixty-one years, who had been admitted on March 8, 1935. He had complained of spasmodic pain in the left maxillary and orbital regions two years previously; this had been relieved by irrigations of the antrum by Dr. Hamilton Kirkland. What the patient thought to be the same pain recurred seven months before admission. At first it occurred about once a week only, but became gradually more and more severe. For the three weeks prior to admission the paroxysms had occurred about every half-hour, lasting for several minutes. Taking food, attempts at shaving, light touch, and wind, all excited paroxysms. He slept very little because of the pain. On examination the areas found to be affected were those innervated by the first and second divisions of the trigeminal nerve. Examination by Dr. Kirkland showed the left antrum to be unaffected. On March 19, 1935, the third division of the trigeminal nerve was injected at the *foramen ovale* with absolute alcohol. Anaesthesia along its distribution followed; but the solution failed to travel upward into the ganglion and the affected divisions were uninfluenced. On March 26, 1935, the semilunar ganglion was exposed and the *dura mater* elevated posteriorly from the petrous bone, to a point immediately posterior to and below the crest of the petrous bone. An incision here in the *dura*, parallel to the line of the crest and extending medially for almost 1.25 centimetres (half an inch) medial to the sagittal plane of the *foramen ovale*, skimmed the upper surface of the attached border of the *tentorium cerebelli* and emerged above it—the incision had been placed a fraction too high. An incision just below and behind it to enter below the *tentorium* wounded a vein (the superior petrosal or a tributary) and oozing failed to cease after light packing for ten minutes. The incision was closed. On April 2, 1935, the wound was reopened and an incision made in the *dura* immediately below the former one. The trigeminal trunk appeared deep to it immediately and was traced to where it pierced the *dura*, and a probe was passed into the *cavum Meckelii*. The trunk was severed and gently avulsed from the brain stem. About 1.5 centimetres (five-eighths of an inch) came away. Operation was followed by anaesthesia of the whole trigeminal area and complete relief from symptoms. The lids of the left eye were sutured at once to protect the anaesthetic cornea; they could now be separated.

Thromboanglitis Obliterans.

Dr. V. M. COPPLESON showed a man, aged thirty-five years, who had had persistent cramp-like pains on the posterolateral aspect of the left leg for three years. A deep ulcer had been present on the heel for three months. He was a heavy smoker. Examination showed that there was a

general wasting of all the muscles of the leg on the left side, and the left foot was blue and cold. No response was obtained on examination with the oscillogram. The patient was unable to sleep at night, owing to the severity of the pain, which was unrelieved by morphine. Some improvement followed the cessation of smoking. Intravenous injections of a 5% sodium chloride solution were given three times a week by Dr. Fitzgerald.

Owing to the ulceration and uselessness of the foot, amputation was recommended; but this was refused by the patient. It was decided to divide the posterior tibial nerve. This was done about five months before the time of the meeting, the nerve being completely divided and immediately resutured. No pulsation could be seen in the posterior tibial artery.

Following the operation all pain in the foot disappeared and the ulcer healed. Sensation was gradually returning in the sole of the foot. The injections were being continued. The patient's general condition and claudication had improved; but he still required the use of crutches.

Diverticulitis with Vagino-Colic and Vesico-Colic Fistulae.

Dr. M. BRITNELL FRASER showed a woman, aged forty-seven years, suffering from diverticulitis of the pelvic colon with a vagino-colic fistula, and also a vesico-colic fistula. At the time of her admission to hospital the patient complained of passing faeces and flatus *per vaginam* for five months and *per urethram* for two weeks. Appendectomy had been performed twenty-four years before, a vaginal plastic operation and possibly internal shortening of the round ligaments twelve years before, and total hysterectomy eight years before. She had three children, aged twenty, eighteen and seventeen years. She had sustained perineal lacerations at each confinement. Eighteen months before admission she had had an attack of generalized abdominal pain with acute exacerbations in the right iliac fossa. This attack lasted about one week and then settled down. Five months before admission she had suffered from a second attack of similar character, accompanied by vomiting. She then passed pus and blood *per vaginam*, followed by faeces. For ten days all faeces were passed *per vaginam*. Since then only a small amount was passed *per vaginam*—more if the motion was relaxed.

Two months before admission frequency of micturition had commenced and the urine became loaded with pus and mucus, and two weeks before admission faeces and air commenced to be passed *per urethram*.

Dr. Fraser informed the meeting that the fistula between the colon and the vagina was situated at the vault of the vagina, in the left fornix, and would admit only a fine probe. The patient had not yet been examined cystoscopically. Dr. Fraser also mentioned that a fistulous communication between the colon and the vagina was very uncommon in this condition. He further drew the attention of the meeting to the fact that the vesico-colic fistula had been preceded by an attack of acute cystitis. The treatment suggested was the administration of urinary antiseptics and daily colonic irrigation with normal saline solution.

Prolapse of the Uterus.

Dr. Fraser's second patient was a nullipara, aged sixty-eight years, suffering from prolapse of the uterus. The patient complained of falling of the womb and frequency of urine for one year. She had also had shortness of breath and a slight cough for two years. There was no history of pregnancy or operation. On examination the cervix presented at the vulvar orifice. The uterus was small. A small cystocele was present. There was no separation of the *levator ani*.

Dr. Fraser said that this condition was rare and due to atrophy and stretching of the supports of the base of the bladder, which allowed the small uterus to slip down the axis of the vagina between the medial borders of the *levatores ani*.

The treatment suggested was control of the prolapse by a ring pessary in view of the patient's cardiac condition.

Cervical Ribs.

Dr. J. E. SHERWOOD showed a female patient, aged thirty-eight years, who complained of loss of weight, insomnia and night sweats of one month's duration, also of numbness of both hands, most noticeable in the morning. X ray examination revealed bilateral cervical ribs, well calcified, and no evidence of pulmonary tuberculosis.

Complete Heart Block.

Dr. Sherwood's next patient was a woman, aged thirty-one years, who complained of cough with sputum off and on for two years. She suffered from paroxysms of coughing, accompanied by precordial pain and a feeling of tightness in the chest. She had had one stillborn child (in 1935) and two miscarriages previously. The apex beat was in the fifth left intercostal space within the nipple line. She appeared to have a definite bradycardia. The rate at the apex was about 50 beats per minute, and at wrist 28. An electrocardiogram revealed a condition of complete heart block.

Ptosis.

Dr. Sherwood also showed a woman, aged thirty-four years, who complained of drooping of the left eyelid for nine and a half years. The onset seemed to have been during the later months of her pregnancy, during which she had "kidney" trouble. There were no other symptoms and no history of diplopia.

Examination revealed well marked bilateral ptosis. There were slight nystagmoid movements of the eyes in a horizontal direction. The cranial nerves appeared otherwise normal. No sensory or motor disturbances could be detected elsewhere, and all reflexes appeared to be normal. Neither the blood nor the cerebro-spinal fluid reacted to the Wassermann test. The patient said that at times, when she was weary, the ptosis was worse. She was having ephedrine twice a day and was to have glycine.

Foreign Body in the Trachea.

Dr. H. S. MARSH showed a male patient, aged thirty-four years, who had walked into the casualty room of the hospital on September 16, 1934, after having been unconscious for five minutes as the result of a blow on the mouth. He stated that he had swallowed his false teeth (four teeth on a plate). The respiration was normal. X ray examination on September 17, 1934, revealed portion of the artificial denture in the trachea. On September 18, 1934, under ether anaesthesia, Bruhning's bronchoscope was passed. The plate was found partly in the larynx and trachea; a small part of it was above the level of the vocal cords. It was seized with alligator forceps and, after some manipulation, removed. The patient was discharged on September 20, 1934. There were no ill-effects. The rest of the plate was not discovered; Dr. Marsh remarked that it had probably fallen in the street when the patient was struck.

Foreign Body in the Œsophagus.

Dr. Marsh's next patient was a man, aged twenty-one years, who had swallowed a chop bone at 6.30 p.m. on July 12, 1934. X ray examination on July 13, 1934, revealed a bone in the Œsophagus at the level of the fifth cervical vertebra. The throat was sore, but the patient was able to swallow. On July 13, 1934, at 2.35 p.m., a Bruhning's Œsophagoscope was passed. The foreign body was seized with side-curved forceps and removed, together with the instrument. The bone was 2.5 centimetres long by 1.25 centimetres thick (one inch by half an inch). The patient was discharged on July 15, 1934.

Dr. Marsh also showed a female patient, aged twenty years, who had swallowed a dental plate at 12 noon on August 29, 1933. X ray examination showed a foreign body in the lower end of the Œsophagus. The patient was referred to Dr. Marsh by Dr. V. M. Coppleston. The patient complained of constant slight pain behind the lower end of the sternum, occasionally becoming severe and spasmodic. Change of position caused temporary relief.

No blood had been expectorated. He was able to swallow fluids. No solid food was being taken.

On August 30, 1933, under ether anaesthesia, Bruhning's Œsophagoscope was passed. With an extension tube the dental plate was located with tooth uppermost about 37.5 centimetres (fifteen inches) from the alveolar margin. The plate was seized with side-curved forceps, and after a little manipulation came away easily and was removed together with the Œsophagoscope. The patient was discharged on September 4, 1933.

Dr. Marsh's last patient was a male, aged fifty-two years, who had been admitted on August 13, 1934. He stated that, while eating fish on the morning of admission, he had swallowed a fish bone. X ray examination revealed a pin in the Œsophagus at about the level of the supra-sternal notch. Under ether anaesthesia at 2 p.m. on August 13, 1934, Bruhning's Œsophagoscope was passed; the pin was located in the position disclosed by the X ray examination, head uppermost. It was seized by side-curved forceps and removed. The patient was discharged on August 14, 1934.

Spontaneous Pneumothorax.

Dr. R. J. TAYLOR showed a female patient, aged twenty-one years, a salesgirl, who had been admitted to hospital from the out-patient department on August 29, 1935. One month previously, when recuperating from influenza, she had suffered a sudden pain in the precordial region. This was of a stabbing nature and was present for only fifteen minutes. She also complained of extreme dyspnoea on exertion, which previously would not distress her. She collapsed; she did not lose consciousness, but became dizzy and felt faint. She was taken home. She felt much better then and did not go to bed. One week later she got a dull ache at the right base of the lung; this continued. The ache was relieved by sitting up and accentuated by lying down. She had a dry, tickling cough for one month. For three weeks she had suffered from palpitation, which became more marked when she hurried.

Physical examination revealed flattening of the right side of the chest; diminished vocal fremitus on the right side; tympanitic percussion note on the right side; absence of breath sounds from the right side of the chest, except in the infraclavicular area; diminution of vocal resonance on the right side.

By X ray examination on August 31, 1935, it was found that the right lung had almost completely collapsed; there was evidence of adhesions; the mediastinum was only slightly displaced to the left; the left lung showed evidence of congestion, but no definite evidence of any tuberculous lesion. On September 10, 1935, X ray examination revealed that the right lung was still almost completely collapsed and showed practically no evidence of any reexpansion. On September 19, 1935, no further expansion of the collapsed right lung had taken place. No fluid was present.

Coarctation of the Aorta.

Dr. Taylor also showed a male patient, aged fifty years, who had been admitted to hospital on August 30, 1934, suffering from shortness of breath for three or four weeks. At that time he was very dyspnoic, with periods of easy respiration. He was slightly cyanosed. In July, 1934, he had had slight attacks of breathlessness. These were at first not frequent; but they became more frequent, more severe and more prolonged. He became very breathless on exertion. He had no pain. He did not faint. He had no palpitation. He had not noticed any swelling of the feet. On examination the apex beat of the heart was found to be in the fifth intercostal space, 13.75 centimetres (five and a half inches) from the mid-line. The heart sounds were irregular and diminished in intensity; extrasystoles were present. The cardiac rhythm was irregularly irregular. The pulse was weak and of the Corrigan type, irregularly irregular; its volume was poor. The veins at the root of the neck were dilated and pulsating. The percussion note was dull and there were crepitations at the bases of both lungs. The liver was slightly enlarged. The ankles were slightly swollen and oedematous. On September 12, 1934, it was found that

the pulse in the left wrist occurred later than that in the right wrist. The systolic blood pressure in the right arm was 174 and the diastolic 70 millimetres of mercury; in the left arm the readings were 120 and 80 respectively. On September 14, 1934, the pulse was much better. He was found to have a leash of pulsating vessels over the right side of the back. The right axillary and brachial arteries were very big, strongly pulsating, and quite visible. The left ones were much smaller, and pulsation in them was almost imperceptible. The blood did not react to the Wassermann test. X ray examination of the chest on September 1, 1934, revealed an opacity in the middle third of both lungs due to pneumonic consolidations; pronounced hypertrophy and dilatation of the heart with evidence of venous congestion of the bases of both lungs. The report of X ray examination on September 15, 1935, was as follows:

The pneumonic condition has resolved, the venous congestion at the bases has become much less. There is considerable enlargement of the left ventricle and of the left auricle. The ascending aorta bulges to the right. The ribs, especially on the right side, show areas of erosion; this condition occurs in cases of coarctation of the aorta, and the appearance of the heart is consistent with this diagnosis.

The patient was discharged on October 3, 1934, and was readmitted on August 23, 1935, complaining of shortness of breath. He had had paroxysms of breathlessness. On examination the right radial artery was noted to be of large size, palpable and uniformly and markedly thickened; the pulse rate was about 54 per minute; the pulse on the right side had a large amplitude and a gradual rise and fall. The blood pressure in the right arm was 180 millimetres of mercury systolic and 90 diastolic. The left radial artery was small and palpable, but not so thickened as the right. The rate was 54 per minute; the amplitude was small, and the pulse was difficult to feel. The blood pressure in the left arm was 132 millimetres of mercury systolic and 80 diastolic. The left pulse occurred shortly after the right pulse. The veins of the neck were full and pulsated when the patient was lying down; but the pulsation was not present when the patient's body was elevated slightly. The venous pulsation was more marked on the right side.

Diffuse pulsations were visible in the region of the apex beat. The apex beat was palpable in the sixth intercostal space, 16.25 centimetres (six and a half inches) from the middle line. The first sound at the mitral area was reduplicated and the pulmonary second sound was accentuated.

An electrocardiogram revealed left bundle branch block.

(To be continued.)

NOMINATIONS AND ELECTIONS.

THE undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Scott, John Alexander, M.B. et Ch.M., 1889 (Edinburgh), M.D., F.R.C.S.E., 250, High Street, Malvern, S.E.4.

Morgan, Francis Marion, M.B., B.S., 6, Lansell Road, Toorak, S.E.2.

Robertson, Gordon Ochiltree, M.B. et Ch.B., 1916 (Univ. Melbourne), Repatriation Hospital, St. Kilda Road, Melbourne.

Laidlaw, Newell Ferguson, M.B., B.S., 1934 (Univ. Melbourne), Alfred Hospital, Prahran, S.1.

Carter, Douglas Arthur, M.B., B.S., 1932 (Univ. Melbourne), 32, Glenleith Avenue, Geelong.

Post-Graduate Work.

WEEK-END POST-GRADUATE COURSE AT ORANGE.

THE New South Wales Permanent Post-Graduate Committee will hold a week-end course at Orange, New South Wales, in conjunction with the Western Medical Association, commencing on Saturday, December 14, 1935. The programme is as follows:

Saturday, December 14:

- 11 a.m. to 11.30 a.m.—"The Dyspepsias: Medical Aspects", Dr. Harold Ritchie.
- 11.30 a.m. to 12 noon—"The Dyspepsias: Surgical Aspects", Dr. H. R. G. Poate.
- 12 noon to 12.30 p.m.—Discussion.
- 12.45 p.m. to 2 p.m.—Luncheon at the Royal Hotel.
- 2 p.m. to 2.30 p.m.—"Digitalis Medication", Dr. Harold Ritchie.
- 2.30 p.m. to 3 p.m.—Discussion.
- 3 p.m. to 3.30 p.m.—"The Diagnosis of Breast Tumours", Dr. H. R. G. Poate.
- 3.30 p.m. to 4 p.m.—Discussion.
- 4 p.m. to 4.30 p.m.—Afternoon tea.
- 4.30 p.m. to 5.30 p.m.—"The Medical and Surgical Aspects of Thyreotoxicosis", Dr. Harold Ritchie and Dr. H. R. G. Poate.
- 6.45 p.m.—Dinner at the Royal Hotel.

Sunday, December 15 (at the Orange Base Hospital):

- 9.30 a.m. to 10.15 a.m.—"The Post-Operative Treatment of the Acute Abdomen", Dr. H. R. G. Poate.
- 10.15 a.m. to 10.45 a.m.—Discussion.
- 10.45 a.m. to 11.15 a.m.—Morning tea.
- 11.15 a.m. to 12 noon—"The Uses of Liver Extract and Insulin in Conditions Other than Pernicious Anæmia and Diabetes", Dr. Harold Ritchie.
- 12 noon to 12.30 p.m.—Discussion.

The fee for the course will be £1 1s. Those intending to be present are requested to notify Dr. S. R. Dawes, Orange, as soon as possible, also to state whether it is their intention to be present at the dinner.

Correspondence.

PATENT MEDICINES.

SIR: There is an aspect of the tablet drug trade of equal import to that discussed by "F.R.C.S." in his letter of October 19. I refer to the calls made by travellers ("representatives" they call themselves) for the drug firms.

I harbour a grudge against these men on two counts, to wit: (a) they call when, during my consulting hours, I am wrestling with the sufferings of patients or (b) they call when, my luncheon over, I compose myself for sleep—my custom always of an afternoon.

They run to all shapes and sizes, these representatives, and to all degrees of volubility. In particular, one little man among them haunts me. I am his plaything, mere wax in his hands. He wears large glasses before his lambent eyes; he has the bearing of a timid deer; his visage bears the look of devotion to be seen on the faces of Landseer's dogs. Yet his meek aspect no longer deceives me. How he manages it, I know not; but he gets into my surgery as easily as a safe-blower opens a tin of sardines. He delights to act as showman for his bottles of tablets—and he is the noblest showman of them all. And once he corners you, hope of escape is vain; you are in for a

long harangue on the merits of his wares. Slowly your desk disappears beneath a spate of leaflets and bottles. The hours drag by on leaden feet. Daylight wanes and the stars peep out. And then, delivery! He rises, gives you a sweaty handshake, and scurries off to his next victim.

I may appear a churlish ingrate, out of touch with the marvels of modern therapeutics. Yet I am not altogether base, for I do approve of the open-handed largess of the drug houses. My housekeeper for long ages spent vast sums in the purchase of what she calls "purgatories"; she was thus the benefactress of the local chemist. She knows better now; she knows that, like manna, endless supplies of "Dynamitol" and "Fæcoblax" will rain upon her, free of all charges; and the chemist, filled with jealous rage, has put up his shutters. As for me, I have not bought a ream nor a quire, not even a single sheet, of blotting paper for years and years. I am grateful to the drug houses for their bounty.

Yours, etc.,
"SAY 99."

Sydney,
October 12, 1935.

LECTURES BY DR. J. B. BANISTER.

SIR: With regard to the two lectures recently delivered by Dr. J. B. Banister, of London, the first on "The Prognosis and Treatment of the Toxæmias of Pregnancy", the second on "The Management of Delayed Labour", I am confident that I voice the opinion of all those who heard those lectures that they are under an obligation to the New South Wales Permanent Post-Graduate Committee for arranging for the delivery of those lectures. Dr. Banister's diction, his quaint humour, his marshalling of his facts, and the clear exposition of his subject, all combined to make those lectures a treat to listen to. My object in writing is to express the hope that the New South Wales Permanent Post-Graduate Committee will devise some means for making those lectures available to the large number of members and colleagues who, for various reasons, were denied the opportunity of hearing them. They must appeal to all general practitioners and those practising obstetrics. May the New South Wales Permanent Post-Graduate Committee devise further similar treats for members on future occasions.

Yours, etc.,
E. L. NEWMAN.

141, Macquarie Street,
Sydney,
October 25, 1935.

AN INTERMEDIATE OPHTHALMIC SERVICE.

SIR: The experiment initiated in New South Wales by the establishment of an intermediate ophthalmic service is arousing interest in other States and deserves thoughtful consideration. The interests to be safeguarded are those of the public and the medical profession.

If it be true that the high fees charged by oculists compel a large section of the public to seek relief at public hospitals, or at the hands of opticians, a reduction of fees would be to the advantage of all. It may be questioned, however, if there is any general demand for a reduction of the fee to one-quarter of that usually charged, as is the case in the New South Wales scheme. The fee (10s.) earned by the oculist for estimating the refraction of the eyes and prescribing glasses appears to me inadequate for the service rendered and would tend to result in hasty and slipshod work, where only the best should be offered to the public.

Furthermore, the magnitude of this social experiment has not received sufficient consideration. The service in New South Wales applies to all persons belonging to a family whose total income does not exceed £250 *per annum*. According to the figures of the census taken in 1933, the number of breadwinners in Victoria returning an income of £250 *per annum* or under constituted 87% of the total number of breadwinners.

It would appear, therefore, that, if the scheme were adopted in Victoria, a very large proportion of the public would be transferred from the field of private practice to the institute. At present the private practice of most oculists is drawn precisely from the class included in this scheme, and these would be lost by all oculists who did not participate in the staffing of the institute.

Again, the substitution of institutional methods for private consultation at the rooms of the oculist appears to me to be a retrograde step. It transgresses cardinal principles which have been stressed by our British *confrères* in their handling of cognate problems, that is, the preservation as far as possible of the normal relationship between doctor and patient, an open field of professional practice, and freedom of choice by the patient of his medical adviser.

There are other objectionable features in the New South Wales scheme, but enough has been adduced to show that proposals for an intermediate service should be looked into very closely, that we should make haste slowly, and weigh, not only the immediate, but the remoter effects of a far-reaching social experiment such as that in progress in New South Wales.

Yours, etc.,
EDWARD L. GAULT.

2, Collins Street,
Melbourne,
October 21, 1935.

Obituary.

FREDERICK WILLIAM JACKSON.

WE regret to announce the death of Dr. Frederick William Jackson, which occurred on September 16, 1935, at Essendon, Victoria.

DAVID EGRYN JONES.

WE regret to announce the death of Dr. David Egryn Jones, which occurred on October 16, 1935, at St. Kilda, Victoria.

JOHN WILLIAM KENNEDY.

WE regret to announce the death of Dr. John William Kennedy, which occurred on October 19, 1935, at South Yarra, Victoria.

PATRICK JOSEPH ALOYSIUS ROCKETT.

WE regret to announce the death of Dr. Patrick Joseph Aloysius Rockett, which occurred on October 20, 1935, at Brighton, Victoria.

Books Received.

- INFECTIONS OF THE URINARY TRACT, by T. E. Hammond, F.R.C.S.; 1935. London: H. K. Lewis and Company, Limited. Demy 8vo., pp. 262, with illustrations. Price: 10s. 6d. net.
LIVING THINGS: AN INTRODUCTION TO BIOLOGY, by R. Palmer; 1935. London: George Allen and Unwin, Limited. Crown 8vo., pp. 400, with illustrations. Price: 7s. 6d. net.
MANIPULATIVE METHODS IN THE TREATMENT OF FUNCTIONAL DISEASE, by E. L. Hopewell-Ash, M.D.; 1935. London: John Bale, Sons and Danielsson, Limited. Crown 8vo., pp. 98. Price: 3s. 6d. net.

MODERN TREATMENT IN GENERAL PRACTICE, Volume II, edited by C. P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E.; 1935. London: Baillière, Tindall and Cox. Demy 8vo., pp. 396, with illustrations. Price: 10s. 6d. net.

DISEASES OF THE NERVOUS SYSTEM: A TEXT-BOOK OF NEUROLOGY AND PSYCHIATRY, by S. E. Jelliffe, M.D., Ph.D., and W. A. White, M.D.; Sixth Edition; 1935. Philadelphia: Lea and Febiger. Royal 8vo., pp. 1176, with 497 engravings and 13 plates.

PROBLEMS OF ANÆSTHESIA IN GENERAL PRACTICE: AN ESSAY AWARDED THE SIR CHARLES HASTINGS PRIZE OF THE BRITISH MEDICAL ASSOCIATION, 1934, by D. H. Lukis, M.D., B.S.; 1935. London: Hodder and Stoughton, Limited. Demy 8vo., pp. 155. Price: 7s. 6d. net.

STERILIZATION: A CHRISTIAN APPROACH, by J. P. Hinton, B.A., and J. E. Calcutt, B.A., with a foreword by L. D. Weatherhead, M.A.; 1935. London: George Allen and Unwin, Limited. Crown 8vo., pp. 196. Price: 5s. net.

CATECHISM SERIES: PATHOLOGY, revised by J. Miller, M.D., F.R.C.P.E.; Fourth Edition, Parts I and II; 1935. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 152, with illustrations. Price: 1s. 6d. each part.

A GUIDE TO THE SURGICAL PAPER, WITH QUESTIONS AND ANSWERS, by R. J. McN. Love, M.S., F.R.C.S.; 1935. London: H. K. Lewis and Company, Limited. Foolscap 8vo., pp. 78. Price: 5s. net.

FELLOWSHIP EXAMINATION PAPERS FOR THE DIPLOMA OF THE ROYAL COLLEGE OF SURGEONS, EDINBURGH, 1931-1935, 1935. Edinburgh: E. and S. Livingstone. Crown 8vo., pp. 44. Price: 2s. 6d. net.

THE TREATMENT OF VENEREAL DISEASE IN GENERAL PRACTICE, by T. Anwyl-Davies, M.D., B.S., M.R.C.P.; 1935. London: John Bale, Sons and Danielsson, Limited. Foolscap 8vo., pp. 202. Price: 7s. 6d. net.

THE SINGLE WOMAN AND HER EMOTIONAL PROBLEMS, by L. Hutton, B.A., M.R.C.S., L.R.C.P., with a foreword by D. Forsyth, M.D., D.Sc., F.R.C.P.; 1935. London: Baillière, Tindall and Cox. Foolscap 8vo., pp. 161. Price: 5s. net.

THE PRINCIPLES OF CONTRACEPTION: A HANDBOOK FOR GENERAL PRACTITIONERS, by J. Malleon, M.B., B.S.; 1935. London: Victor Gollancz, Limited. Crown 8vo., pp. 160. Price: 4s. 6d. net.

Diary for the Month.

- Nov. 12.—Tasmanian Branch, B.M.A.: Branch.
Nov. 12.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
Nov. 13.—Victorian Branch, B.M.A.: Branch.
Nov. 19.—Tasmanian Branch, B.M.A.: Council.
Nov. 19.—New South Wales Branch, B.M.A.: Ethics Committee.
Nov. 20.—Western Australian Branch, B.M.A.: Branch.
Nov. 20.—Victorian Branch, B.M.A.: Clinical Meeting.
Nov. 21.—New South Wales Branch, B.M.A.: Clinical Meeting.
Nov. 22.—Queensland Branch, B.M.A.: Council.
Nov. 23.—Victorian Branch, B.M.A.: Country Branch Meeting (Horsham).
Nov. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.
Nov. 27.—Victorian Branch, B.M.A.: Council.
Nov. 28.—South Australian Branch, B.M.A.: Branch.
Nov. 28.—New South Wales Branch, B.M.A.: Branch.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser", pages xvi-xviii.

BOULIA HOSPITAL, BOULIA, QUEENSLAND: Medical Officer.
KALGOORLIE DISTRICT HOSPITAL, KALGOORLIE, WESTERN AUSTRALIA: Resident Medical Officer.

LAUNCESTON PUBLIC HOSPITAL, LAUNCESTON, TASMANIA: Resident Medical Officer.

NEWCASTLE HOSPITAL, NEWCASTLE, NEW SOUTH WALES: Medical Registrar.

REPATRIATION COMMISSION, PERTH, WESTERN AUSTRALIA: Medical Officer.

ROYAL HOSPITAL FOR WOMEN, PADDINGTON, NEW SOUTH WALES: Resident Medical Officer, Junior Resident Medical Officer.

SAINT VINCENT'S HOSPITAL, MELBOURNE, VICTORIA: Senior Resident Medical Officers, Junior Resident Medical Officers.

THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY, NEW SOUTH WALES: Junior Resident Medical Officers.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Chillagoe Hospital. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL, are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 267, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington. New Zealand.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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